THE CONDOR

A Magazine of Western Ornithology

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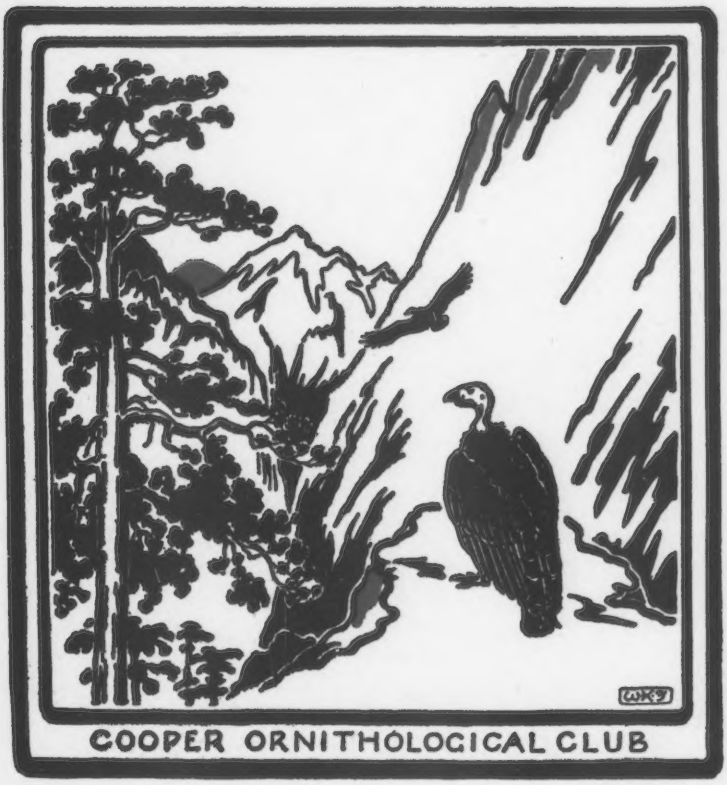

COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

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CONTENTS

Examples of Recent American Bird Art (with 21 ills.) ..... *Harry Harris* 191
How the Bird Census Solves some Problems in Distribution ..... *May Thacher Cooke* 206
The Faunal Areas of Baja California del Norte (with map) ..... *Griffing Bancroft* 209
The California Forms of *Agelaius phoeniceus* (Linnaeus) (with 5 ills.) ..... *A. J. van Rossem* 215
Notes on the Birds of the Baboquivari Mountains, Arizona (with 2 ills.) ..... *Stephen C. Bruner* 231

FROM FIELD AND STUDY

What is a Water Bird? ..... *Edmund J. Sawyer* 238
San Diego Red-wings Nesting in an Orange Grove ..... *James A. Calder* 240
As to the Type of *Falco peregrinus pealei* ..... *Robert Ridgway* 240
A Spring Trip to Santa Cruz Island ..... *Roland Case Ross* 240
Notes on White-fronted and Tule Geese in Central California ..... *James Moffitt* 241
The Cardinal Again ..... *H. N. Henderson* 243
Fruit-eating Hummingbirds ..... *Austin Smith* 243
Correction Concerning Aviaries ..... *Casey A. Wood* 243
Robin Carrying Water to Young ..... *James L. Ortega* 244
Exhaustion of Migrating Sea Birds ..... *Joseph W. Sefton, Jr.* 244
Some Notes on the Cliff Swallow ..... *John McB. Robertson* 244
Has the Cowbird Come to Stay? ..... *Charles Piper Smith* 245
The Ferruginous Rough-leg Nesting in Oregon ..... *Stanley G. Jewett* 246
Additional Records from Arctic Alaska ..... *Alfred M. Bailey* 246
The Lower California Reddish Egret ..... *A. J. van Rossem* 246

MINUTES OF COOPER CLUB MEETINGS 247

Fig. 50. THE TULE FOG, SNOW GEESE: Allan Brooks.

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EXAMPLES OF RECENT AMERICAN BIRD ART

WITH TWENTY-ONE ILLUSTRATIONS

By HARRY HARRIS

IDLE as it may be for the layman to attempt an understanding of modern art's sweeping dismissal of bird portraiture to the realm of non-art, it were well for the ornithologist to know that his taste for pictures has been compared to a cow's taste for grass; "they both know what they like!" The art critic's logic thus implied need in no way discourage or influence the bird student's enthusiastic appreciation and respect for the exquisite rendering of bird life by certain members of the small group of artists now working in the North American avifauna. In his loyal ministering to truth the bird artist is of necessity compelled to ignore the atavic and morbid tendencies so obvious in much current artistic expression, and build to those established ideals that have actuated nearly all zoological artists in their struggles to satisfy the demands of science as well as of art.

In this connection it is refreshing and illuminating to consider a guiding principle in the life of Joseph Wolf (1820-1899). Considered by many competent judges to occupy so eminent a position among the animal painters of all time as to stand utterly alone, this master was ever influenced in his interpretations by the certain knowledge that "we see distinctly only what we know thoroughly". In the light of this authority the art critic's dictum that the bird artist knows too much about birds to translate his subject in terms of true art becomes illogical if not absurd. If the ornithologist be bovine in his taste for pictures he is at least satisfied by those qualities in them that only the ornithologist-artist is equipped to render, and, as Dr. Frank M. Chapman has recently pointed out, "born artists are rare enough, but born ornithologists are even rarer". If beauty and truth are to be expunged from the definition of art, it is certain that naturalists will be last to accept the new order.

The highly commendable efforts of the American Ornithologists' Union to bring ornithological science and art into closer relationship and understanding by showing collections of bird paintings and drawings at several of its recent Stated Meetings has unquestionably done much to stimulate public taste for this highly decorative and instructive class of art. With the same purpose in view, and with the aim of providing the greatest possible entertainment and pleasure for expected visitors at its First Annual Meeting early this year, the Cooper Ornithological Club invited artists known to be working with North American birds to contribute to the first exhibition of their original work ever assembled on the Pacific Coast. Their generous response far exceeded the hopes and expectations of interested members, and resulted in a display of surpassing distinction. The coöperation of the Los Angeles Museum of History, Science and Art made it possible adequately and properly to hang the nearly three hundred pictures in three large well-lighted galleries of the Museum, where, owing

Fig. 50. THE TULE FOG, SNOW GEESE: Allan Brooks.

to an ever increasing public interest, they were kept in place for nearly two months instead of the three weeks originally planned. It has been thought that those readers of THE CONDOR unable to attend the salon might care to know something of the work exhibited.

An impression of the high standard of excellence of the collection can best be conveyed by reproductions of several of the pictures themselves, since the present writer is unqualified to do a technical critique of the show, or to analyze the work of any one artist, seeing that he could be guided only by an intense feeling for bird art in general and a few frank prejudices in particular. Therefore let the reader view the illustrations given here through THE CONDOR's generosity and form his own conclusions.

Unable to send paintings or drawings, Mr. Frank W. Benson, of Boston and Salem, Massachusetts, was represented by eleven of his well-known etchings and dry-

Fig. 51. GENERAL VIEW OF PORTION OF BIRD ART EXHIBIT, LOS ANGELES MUSEUM, APRIL, 1926.

points, selected to show his treatment of as many different species as possible. The work of this internationally famous artist certainly needs no word of introduction. Mr. Frank Bond, of Washington, D. C., known for his original method of rendering the metallic sheen and luster on hummingbirds and other tropical species, sent six of his immaculate water colors showing this effective and natural quality. The line of seven great water colors by Mr. Rex I. Brasher, of Kent, Connecticut, made a stunning show along nearly the entire length of a long gallery wall, and was the source of much favorable and enthusiastic comment. Major Allan Brooks, of Okanagan Landing, British Columbia, known to the entire ornithological world as a leader in his field, contributed six late examples of his work, exhibiting a very high degree of pictorial quality. The faultless draughting of form and posture, the judicious selection and use of color, and the masterful composition of this artist, together with his profound and intimate knowledge of the bird and mammal in nature, all combine to render him most fit to carry on the Wolfian tradition. That his pictures are replete in all those qualities that denote works of fine art, the reader may judge from the two reproduc-

tions given herewith, and that they well illustrate the truth of knowing thoroughly in order to see distinctly, the field naturalist and working scientist are best qualified to judge.

Mr. Charles Livingston Bull, busy wild life artist, of Oradell, New Jersey, was able to loan but two of his vigorous and distinctive drawings. Everyone is familiar with Mr. Bull's pleasing style, and there are many of us who have read in popular magazines and elsewhere stories that would have escaped us but for the urge of his compelling illustrations. Mr. Henry C. Denslow, of Hartford, Connecticut, veteran of numerous museums, is one of the artists whose original work had been entirely unknown to most Cooper Club members, and we were fortunate in being able to hang a choice selection of his delicately executed water colors illustrating a large series of the song birds, together with a few of the larger species. Among others of the fraternity who gave us the pleasure of a first view of their art were Mr. Edward von S.

Fig. 52. ANOTHER GALLERY DEVOTED TO THE BIRD ART EXHIBIT AT THE LOS ANGELES MUSEUM.

Dingle, of Mount Pleasant, South Carolina; Mr. Ottmar F. von Fuehrer, now of Gainesville, Florida, and Mr. Roger T. Peterson, of Jamestown, New York. Mr. Dingle's studies are mainly of the species native to the swamps and shores of his southern home region, and appropriately convey their environmental atmosphere. The exotic pieces of Mr. von Fuehrer are from the practiced hand of an artist who has enjoyed superior opportunities in European training in both art and science. Mr. Peterson is only yet acquiring his technique, but his drawing shows great promise, and he should be encouraged to continue focusing his talent on zoological subjects.

Mr. Louis Agassiz Fuertes, Ithaca, New York, bird portraitist supreme, and perhaps best known to the American public of all specialists in this field, astonished patrons of the exhibition by the quality of his craftsmanship. It is indeed fortunate for ornithology that this artist has held to absolute freedom in developing his own method of expressing his fine appreciation and feeling for bird beauty, thus preventing his approach from being prejudiced or hampered by academic training. That he was early saved to science by the acumen and sound judgment of his mentors is cause for

Fig. 53. PRAIRIE FALCON: Louis Agassiz Fuertes.

Fig. 54. THE END OF THE TRAIL: Allan Brooks.

[196] Fig. 55. CINNAMON TEAL: Lynn Bogue Hunt.

Fig. 56. RING-NECKED PHEASANTS AND WILD GRAPES: Lynn Bogue Hunt.

Fig. 57. HARPY EAGLE AND SPOONBILL: Earl L. Poole.

Fig. 58. CHICKADEES: Francis L. Jaques. [197]

Fig. 55. CINNAMON TEAL: Lynn Bogue Hunt.

Fig. 56. RING-NECKED PHEASANTS AND WILD GRAPES: Lynn Bogue Hunt.

Fig. 57. HARRY EAGLE AND SPOONBILL: Earl L. Poole.

Fig. 58. CHICKADEES: Francis L. Jaques.

Fig. 59. CALIFORNIA CONDOR: R. Bruce Horsfall.

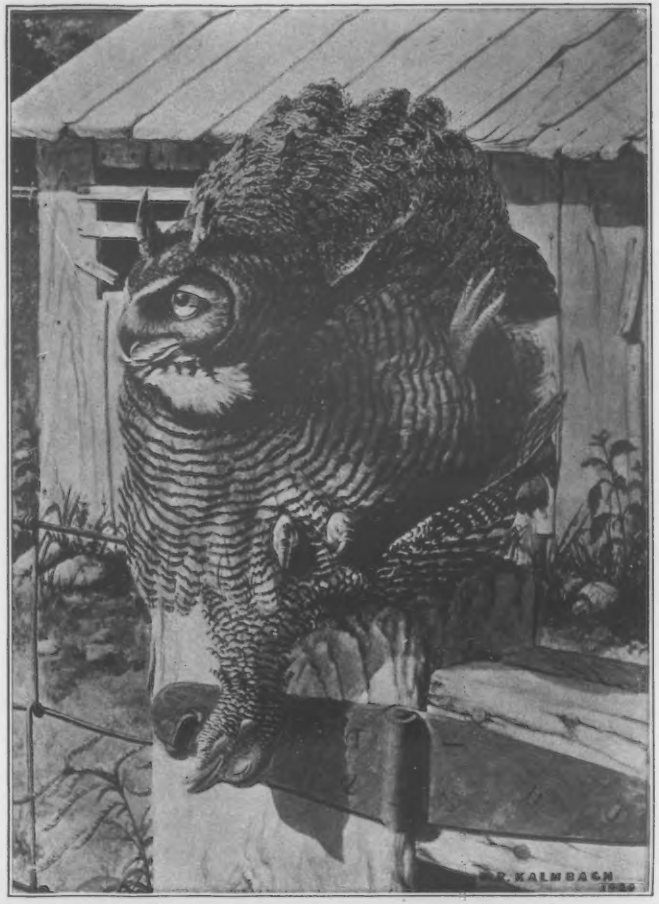

Fig. 60. GREAT HORNED OWL: Edwin R. Kalmbach.

Fig. 59. California Condor: R. Bruce Horsfall.

Fig. 60. Great Horned Owl: Edwin R. Kalmbach.

Fig. 61. California Jays: John L. Ridgway.

Fig. 62. Water-color Drawings: Robert Ridgway.

Fig. 63. GULLS RESTING: Frank Hennessey.

Fig. 64. RAZOR-BILLED AUKS AND GANNETS: Frank Hennessey.

Fig. 66. GREAT WHITE HERON: George M. Sutton.

Fig. 65. CONDORS: Will Simmons.

Fig. 66. GREAT WHITE HERON: George M. Sutton.

Fig. 67. TREE SPARROWS: Edmund J. Sawyer.

the thanks of all bird lovers, for here is a painter after the hearts of them all. His Prairie Falcon, graciously done especially for this exhibition, is so instinct with truth, character, action and *expression* that the very acme of avian portraiture has been reached in it. A black and white reproduction can not of course do justice to the original.

The nine canvases by Mr. Frank Hennessey, of Ottawa, Canada, done in the broad manner of the finished technician, added a distinctive atmosphere of quality to the whole display. That here is at least one worker interpreting bird life to the satisfaction of art juries is indicated by the admission of his oils to exhibitions of

general scope on both sides of the Atlantic. In his temperas, much smaller in size, Mr. Hennessey treats his model more as a portrait than as accessory to his composition.

Mr. R. Bruce Horsfall, of Washington, D. C., whose pen and brush have won him the attention and regard of all lovers of wild life, was represented by a fine group of his large water colors, together with two oil paintings of heroic size. One of the latter, reproduced here, was particularly appropriate for the occasion and aroused much interest and comment owing to both its subject and the fine manner of handling. The high quality of Mr. Horsfall's art surprised not a few who were familiar only with some of his earlier published plates. Mr. Lynn Bogue Hunt, of New York, generously allowed five of his inimitable paintings to be shown. The forceful and dramatic appeal of Mr. Hunt's pictures, together with their faithful portraiture and

Fig. 68. FLORIDA BROWN PELICANS: Karl Plath.

immensely satisfying composition, rendered his display particularly striking, and contributed much to the public's enthusiastic reaction to the salon. Mr. Francis L. Jaques, also of New York, was able to contribute but a single example of his exceptional ability to interpret nature and birds. The felicity of his expression may be seen in the accompanying illustration, the original oil being in close values of colorful gray.

One of the surprises of the show proved to be the group of small water colors by Mr. Edwin R. Kalmbach, of the Biological Survey, Washington, D. C. The fidelity of Mr. Kalmbach's likenesses and the finish of his execution justly entitle him to recognition as a bird portraitist of the first rank. Fortunate indeed is it that he has not been influenced by the vagaries of modern expression. The delicate and misty water colors of Mr. Jay D. Knap, of New York, interpret his reactions to the hunting

of water fowl, and he has rendered with individual artistry those moments of suspense so familiar to votaries of this sport. Mr. Charles R. Knight, another New Yorker, was represented by the huge canvas owned by the Los Angeles Museum and displayed in the La Brea Fossil Room of this institution. The group of immense extinct Vultures (*Teratornis*) embodied in this panoramic composition has been restored in Mr. Knight's well-known and satisfying manner. The luminous paintings of Mr. Irving Manoir, of the Laguna Beach, California, art colony, are examples of the very appro-

Fig. 69. ROSEATE SPOONBILLS: Earl L. Poole.

priate use of the bird for purely decorative ends. In admiration of his rendering of color, form and feather, and in respect for his quite evident knowledge of structure, the ornithologist is tempted, though of course without justification, to overlook this artist's occasional liberty with nature.

The water color sketches of Mr. O. J. Murie, another Survey artist, of Washington, D. C., denote the exactitude and precision demanded by science, and among his studies, made on the spot in the field, are faithful and permanent records of facts previously unknown. The large oil paintings of Mr. Karl Plath, of Chicago, show

an appreciation and enthusiasm for the gorgeously plumaged species so dear to the heart of the colorist, and account for his maintaining a large private aviary dedicated to his models. Mr. Plath's section naturally attracted much public attention. Mr. Earl L. Poole, of Reading, Pennsylvania, an artist of wide versatility and finished technique, loaned a goodly showing of his pieces. In his Roseate Spoonbills, a large oil, the artist has attained a remarkable atmospheric expression. The fine effect of his coloring is of course lost in the monotone of the illustration.

An encouraging and significant result of the exhibition has been the arousing of a long dormant feeling for avian delineation in the veteran scientific illustrator Mr. John L. Ridgway, of Glendale, California. The years of service devoted to ornithology by this useful and distinguished member of his craft will be recalled by ornithophiles, though much of his public work was unsigned, and no bird plate has appeared over his name in many years. It is pleasant to recall here his unsurpassed drawings of eggs for Bendire's "Life Histories". To realize that these plates have never been equalled in any country it is only necessary to compare them with the best continental and British examples of oological illustration (including the justly famous German lithographs that find their best expression in the work of Georg Krause); and that this field will never see their like again seems quite certain. It is a much appreciated

Fig. 70. SPRUCE GROUSE: Chas. Livingston Bull.

privilege to be able to show here the reproduction of a bird picture painted by Mr. Ridgway since the exhibition; the first, with one exception, done by him in fifteen years, and his first attempt in the medium of guash, or opaque water color.

The section devoted to the paintings, drawings and sketches of Mr. E. J. Sawyer, of Yellowstone Park, Wyoming, made a pleasing display, and was especially appreciated by those visitors who have long been familiar with his highly useful published work. The paintings and etchings of Mr. Will Simmons, of New Milford, Connecticut, clearly indicate his artistic heritage, as well as his scientific schooling, and that he is at home in an unusual number of mediums makes him particularly valuable to ornithology. The two oils exhibited by Mr. George M. Sutton, of Harrisburg, Pennsylvania, by their striking contrasts and sheer beauty did not fail to arrest the attention and praise of everyone. His superb Great White Heron, shown here, illustrates admirably the decorative value of the bird, and also shows the great and rapid strides this artist has recently made in the development of his expression. Mrs. Helen Damrosch Tee-Van, of New York, an experienced scientific delineator, contributed two water color portraits of exotic species showing an exquisite handling of pattern and color details of plumage.

Greatly desiring to add to the exhibition material of historic interest that might appropriately balance and complement the aesthetic appeal of the pictures, Mr. Robert Ridgway very graciously allowed us the temporary custody of a collection of treasures culled from his files and portfolios. The items included drawings, sketches, water color paintings, lithographic proofs, important letters from Professor Baird and Clarence King, memorandum books and field notes, all bearing on little known phases of the career of this modest savant, and testifying to the genius that will forever mark one of the most important and fruitful periods of activity in American science. Space here will not permit of the treatment this collection warrants; but that it constitutes a graphic and chronologic record of the early progress and growth of the mind that made possible the Ridgway Epoch of American ornithology bespeaks its superlative interest and importance.

The Cooper Club wishes again to express to the workers mentioned its warm thanks and keen appreciation for the pleasure and profit derived through their generous coöperation in making the Club's First Annual Meeting such a landmark in the history of ornithological development on the Pacific Coast.

Eagle Rock, California, July 11, 1926.

HOW THE BIRD CENSUS SOLVES SOME PROBLEMS IN DISTRIBUTION

By MAY THACHER COOKE

LIFE is never static but always shifting, and bird life is no exception. One of the problems confronting ornithologists is to learn the nature, extent, and rapidity of the changes taking place in the distribution of birds. Censuses of breeding birds have been found an excellent means to this end, in fact about the only one yet devised that will furnish definite statistics on which to base deductions regarding numerical changes in various species.

Persons working on problems of the distribution of birds feel the need of definite numerical statistics for former years. Memory of past abundance, usually impression rather than accurate count, is a poor basis for scientific work, particularly since recollection of numbers frequently magnifies the facts. Lack of the material desired should make ornithologists of today only more willing to collect it for the benefit of those who come after them; for the work must be done *now*, not left until some future time. Numerical data relating to birds continue to increase in value the farther we get from the conditions to which they relate.

To get the best results, bird-census studies should be conducted on a large scale. It is hardly possible for one person or a small group of persons to carry on investigations over a sufficiently large section of the country to obtain results from which entirely satisfactory generalizations can be made, and it is, therefore, almost imperative that such work should be done on a coöperative basis. Some persons feel that bird-census work is not worth while because the entire field can not be covered. While much of the information on this subject is often tantalizingly fragmentary, yet even such material has been found of value and much better than nothing at all.

The most definite figures for purposes of comparison, from which to learn what fluctuations in the numerical distribution and in the relative abundance of the species take place from year to year, or over longer periods, seem to be obtainable from bird

censuses taken during the breeding season. We may also, in time, discover whether or not these changes take place with any degree of regularity. Observations of various kinds show that many species are shifting their ranges, but the records are often fragmentary and rather indefinite. Statistics obtained from bird censuses are exact, and will in the course of time furnish the means of tracing these changes, as well as of learning how rapidly they take place. It becomes evident, therefore, that these censuses should deal with the same areas year after year, in order that the resulting figures may be comparable. These series of records dealing with the same tracts of land over a period of years will furnish the material by which can be determined not only what species are extending their ranges and in what direction, and what species are becoming more restricted in distribution, but also the exact time of the changes and the rapidity with which they take place. Also, in course of time, the numerical increase or decrease of the individual species will become known.

Unfortunately, after taking bird censuses for a year or two some persons become discouraged and give up the work. Their records, extending over even short periods, have some value, but it is seldom possible to gain any real insight into the bird life of a given tract with less than five years' records. Even with long series of records those resulting from the study of a single tract will show only strictly local conditions, but they may also give a hint of some more general movements. Slight fluctuations from year to year are to be expected, but if physical conditions remain the same, any very marked change is seldom of local origin. The greater the number of sets of records available, the more definitely can the extent and cause of such changes be determined. Series of records will show the fluctuations during different periods and whether there is any increase or decrease in the total bird life of the country.

An especially interesting and important problem in distribution along this line is to learn the changes that occur when water is turned on to arid land. The transformation of the land from desert to farmland will cause, in the bird life, considerable change about which exact information is greatly needed. Some desert-loving species will almost or entirely disappear; others will adapt themselves to the altered conditions; and some species not before found in the region will extend their ranges into this area as it becomes favorable to them. It is known, in a general way, that such changes will occur, but in order to learn their exact nature, what species will be affected, or the rate at which the changes will take place, exact records are needed such as can be obtained only by means of bird censuses. There is especial need of such a study in regions affected by reclamation projects. In order to get a comprehensive view of the bird life under arid conditions, the work should begin at least a year or two before the water is turned on; and in order to follow the successive changes, it should continue indefinitely as the land remains under irrigation.

Under desert conditions there are large areas on which the animal life is nearly uniform, but this uniformity will seldom hold after the land has come under cultivation. The nature of the crops grown will to some extent influence these changes in bird life and determine the species that will leave and those that will come into the area. It is very desirable, therefore, that the plots for censuses be chosen in various parts of the affected area and include the different types of crops raised, in order that the information gained from the study may be comprehensive.

If it is impossible to take censuses every year, counts made at intervals of two or three years will at least record the general trend of events. The information thus obtained, however, will not be so accurate as when the counts are made every year; for under such circumstances it would not be possible to determine the exact year when a new species came in or an old one disappeared.

Lists of the birds seen in a single day, made from year to year over a given area at the same period of bird life, make in themselves interesting studies. While they give a fairly accurate basis for conclusions regarding fluctuations in the species present, they are less satisfactory as to variations in numbers. For the latter purpose censuses of breeding birds are more useful, since, if taken according to the methods recommended by the Biological Survey, many of the variable factors such as weather, seasonal conditions, and movements of birds which so affect the "day" list are thereby eliminated and, likewise, the personal equation is greatly reduced.

Obviously, there is some chance of error in the results, especially in making, from scattered bird censuses, generalizations for the country as a whole. This error would probably be greater in the West than in the East, since more variable factors, including those of altitude and humidity, enter into the equation. Were it feasible to take censuses over large sections of the country, error would be reduced, and the larger the percentage of the entire country represented by censuses the less would be the error. In taking a census over a large area it is much better to consider it as an aggregate of several smaller tracts, unless one set of conditions holds over the entire area. In deserts, areas of several hundred acres may be found where practically the same conditions prevail, but this will seldom be the case on cultivated land.

The need of statistics regarding the approximate numbers of birds and their relative abundance is being felt by ornithologists all over the world. Dr. Walter E. Collinge of England, in an article entitled "The Need for a Bird Census" (Scottish Naturalist, Jan.-Feb., 1921, pp. 22-24), has called attention to this need as a guide to proper measures for bird protection. To provide such statistics he proposed a bird census of Great Britain to be taken along the lines advocated by the Biological Survey. For several years studies of this nature have been made in Australia by some of the ornithologists of that country, as described by J. Burton Cleland, "A Method of Taking a Bird Census (Emu, XXII, July, 1922, pp. 18-23). Thus far their method has been somewhat different from that followed in the United States; but their object has been the same, that is, to learn the relative abundance of the species, and to collect numerical data from which to make comparisons in years to come.

The bird census, as begun under the Biological Survey, has now passed the experimental stage and has an established place in the study of distribution and migration. It has proved to be an excellent means of gathering definite information on the numerical distribution of birds throughout the country and on the fluctuations that take place in bird life. It is also a valuable aid to protection and conservation, since it provides exact information regarding the increase or decrease of the various species. Furnishing, as it does, data for solving many problems dealing with bird life, the bird-census work should by all means be continued for many years to come.

U. S. Biological Survey, Washington, D. C., March 2, 1926.

THE FAUNAL AREAS OF BAJA CALIFORNIA DEL NORTE

WITH MAP

By GRIFFING BANCROFT

OUR accepted authority for the faunal mapping of southern California is Dr. Grinnell. For northern Lower California there has been no material revision since the lines were drawn by Dr. Nelson after his memorable exploration. Where the mapping of these two authorities meets, on the international line, it at once becomes apparent that there are very considerable inconsistencies in their conclusions. In order to bring harmony between the two maps and with the physical geography of the country, it seems necessary to make some changes, especially with respect to the southern territory. The recognition of two or more new areas is unavoidable, as is a drastic shortening of the southern extensions of both the San Diegan and Colorado Desert areas.

THE COLORADO DELTA DISTRICT

Let us consider first the delta of the Colorado. It differs from the surrounding desert in that it is watered by the river. In fact the delta country may be defined with accuracy as the region adjacent to the Lower Colorado which is directly irrigated, either subterraneously or by overflow.

The boundaries of this Colorado Delta District are the Gulf of California on the south and the Hardy River on the west. While it is true that at places delta conditions do occur on both sides of that stream, the acreage so occupied is too negligible to necessitate further qualification. The Delta District extends to the eastward well into Sonora until it meets the deserts of that state. Its northern boundary is not fixed, for it is steadily being forced southward by the encroachments of agriculture. Once the land is cut off by levees and cleared, it becomes as any other part of the cultivated Imperial Valley. Much of the animal life of the desert filters in following closely the harrow and the plough.

The delta, or what is left of it after hundreds of thousands of acres have been taken, is unlike anything else in this rainless land. The key is water, and relative altitudes figure here, often as measureable in inches. Some water levels are seasonal, depending on the flow of the river, which in turn is determined by the melting snows in far distant mountains. Others are tidal, which means that they vary as much as forty feet according to the phases of the moon. There are land levels too. The combination results in a multitude of local areas of diversified vegetation.

Near the mouth of the river are great fields of salicornia, a plant which is able to withstand, and even demands, regular flooding. Next in elevation are the fields of grass, the grazing ground of migratory geese and the home of the Large-billed Sparrow. The grass flourishes under its monthly wetting, which comes with the high tides.

Then there is the typical delta jungle, of several phases. There are the areas of little water, where brush and stunted mesquite stand in larger or smaller otherwise sterile open spaces. There are the close-grown tracts of mesquite, where often the trees attain quite respectable size, verging into and encroaching upon the forests. The latter typically are of willow saplings twenty to thirty feet tall growing too closely together to admit of any but the smallest lateral branches. There are some, but comparatively few, large willows and cottonwoods. Their fickle enemies, drought and flood, are not permissive of longevity. One finds the survivors of the fierce struggle

for existence, usually in rows that are spaced quite far apart and appear to run at random. The cause lies in some obscure water way, perhaps drainage, perhaps sub-irrigation. There is apt to be a heavy undergrowth here, as in all favorable places.

Such is the delta, as fascinating, as puzzling, and as changeable as weather. Surrounded by desert and constantly fighting to preserve its identity, it is as unlike its immediate surroundings as adjoining countries well can be. Host to most of the desert birds, which seek out its arid phases as they find them here and there, still it has, from Caracaras on the north to Large-billed Sparrows on the south, its quota of birds which hereabouts do not make their homes elsewhere.

SAN PEDRO MARTIR DISTRICT

Concerning this area it must be noted that from Valle de la Trinidad at least to the foot of the Cuyamaca Mountains there is a plateau of homogeneous character. This strip is of indeterminate width. It rises gradually on the Pacific side to a minimum altitude of 4000 feet. The rainfall it receives decreases rapidly toward the east; consequently semi-arid vegetation filters into it almost imperceptibly.

Between the plateau and the floor of the Colorado Desert is another strip. This one runs along the eastern slope of San Jacinto Peak and south to the San Pedro Martir Mountains, including them both. It is the most inhospitable region in temperate North America. Generally speaking, it is a mass of barren, weather-worn rocks, piled into towering hills and spurs, or crowding the sides of abysmal cañons. It represents a fall of many thousands of feet in but a few miles. Almost devoid of plant or animal life, it is a barrier to intercourse with, or contact between, the mountains on one side and the comparatively fertile desert on the other. This strip is cut by quite a few ravines that carry the rare and intermittent rivers to oblivion in the sands below. But the courses cut by the water, however seldom it may run, have established points of contact eagerly seized by both flora and fauna.

The plateau region has a minimum width of about twenty miles. It is consistently covered with a heavy growth of the greasewood that flourishes in decomposed granite soil. There are to be considered timbered spots as well. Along the stream bottoms that slope toward the Pacific are to be found many groves of oak and borders of sycamore, with accompanying undergrowth. On the higher points are the conifers. These do not form a continuous line. They appear here and there in smaller or larger forests. Also there are the intermediate conditions, typified largely by the piñons.

It is difficult to take these parallel strips and harmonize them with any of the faunal districts already established. On the other hand, it is not desirable to make two or even one separate area of them. But I do insist that to whatever life-zone they are referred they be treated the same in California as in Mexico. Either Nelson's San Pedro Martir District should be brought north to the foot of the Cuyamacas, if indeed it do not include them, and Palomar and the Lagunas as well, or else Grinnell's San Diegan District should be extended to Valle de la Trinidad. Either alternative would satisfy geography.

We had best, I believe, accept the San Bernardino District as it stands, and the San Pedro Martir District as ending at Trinidad. The international line certainly should be erased and dropped from further consideration. Until something better is decided upon, I would regard the sterile region, apparently a regular home chiefly of the Rock Wren, as a factor of no importance other than the prime one of breaking contact between the San Diegan and the Colorado Desert districts. Farther south,

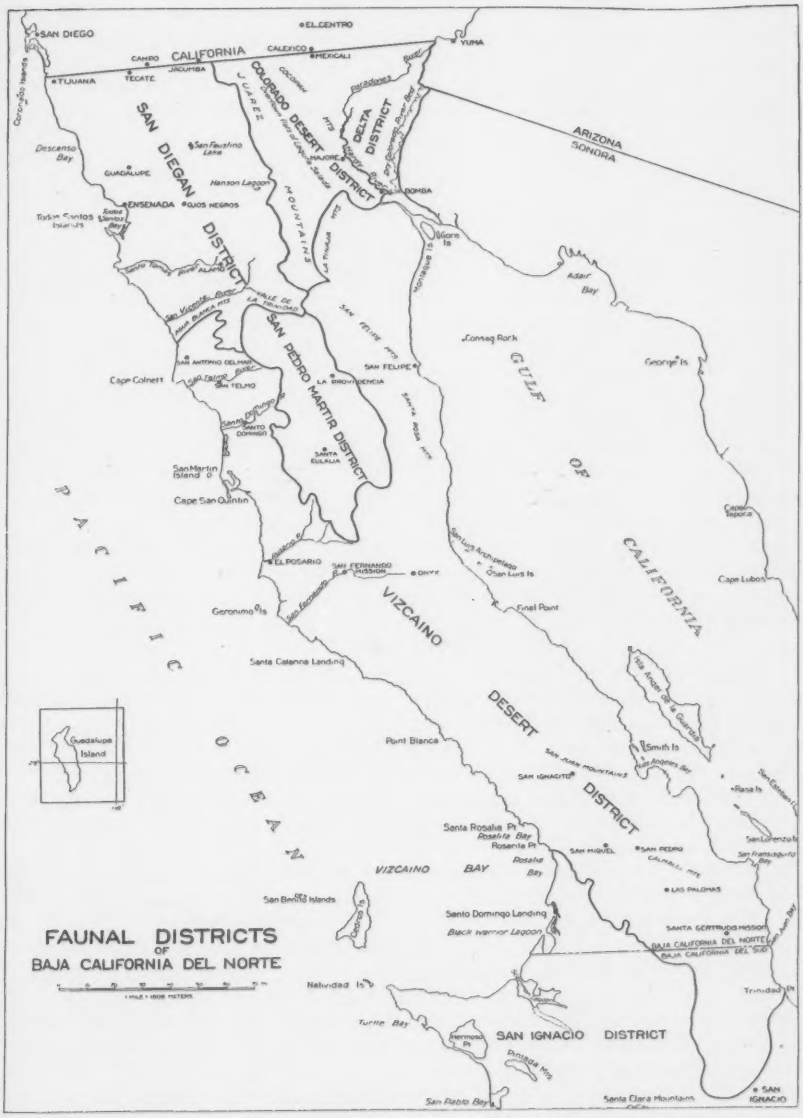

Fig. 71. FAUNAL DISTRICTS OF THE NORTHERN PART OF LOWER CALIFORNIA.

as it widens until it includes a goodly part of the Peninsula along the towering mountains, it also marks the southern end of the Colorado and the eastern limit of the San Pedro Martir districts.

The result of this procedure is to confine the San Pedro Martir District largely to the western slopes from Trinidad to the plains below San Quintin.

THE COLORADO DESERT DISTRICT

This includes all that portion of the northeastern corner of Lower California of which disposal has not already been made. The development of the farming industry has been very rapid both south and east from Mexicali. This is especially true with regard to cotton. From Volcano Lake to the Bee River and the sand hills, drainage and cultivation have brought in Imperial Valley conditions. West of Black Butte and the Hardy River the desert extends southerly in a rather narrow strip until it is pinched out by the barren lands already described. This takes place somewhere north of the peak of San Pedro Martir. We go into an area practically devoid of bird life. On the north is one desert, on the south another. But the two are as effectively separated as though a small world stood between them.

Dr. Nelson disregards this condition and carries the Colorado Desert District along the shores of the Gulf almost to the southern line of Baja California del Norte. His line runs inland fifty miles or more—to what? Certainly not to any natural boundary either of physical geography or of soil. The plant life and the climate are those of the country included in the Vizcaino Desert area.

For the present, at any rate, we can conclude only that the Colorado Desert District ends somewhere near the northeastern corner of the San Pedro Martir. A more exact determination will not come without farther exploration and the accumulation of more data.

THE VIZCAINO DESERT DISTRICT

The northern limits of this area push past both sides of the southern end of San Pedro Martir. On the east they reach the "bad lands", on the west the Sierra Agua Blanca. Farther south the Vizcaino Desert spreads across the Peninsula from shore to shore. It follows the Gulf to and beyond the southeastern corner of Baja California del Norte. On the Pacific it and the hills end together at Rosarita Point.

The area I have outlined is a desert in the sense we use the word. It is heavily overgrown in many places; but the vegetation is characterized by cactus and thorns. At Santo Domingo there is a very respectable willow bottom, and there is another at El Rosario. The bird life in these, except for the Song Sparrow, seems to be very largely that of the San Diegan District. At San Telmo and a few other spots sumach is quite abundant. It is the home of *Toxostoma redivivum helvum.* Below San Antonio del Mar, and more especially in the neighborhood of San Quintin and to a limited extent at El Rosario, we have marsh conditions similar to those of San Diego County. On some of the higher plains cactus is rare, being replaced with sage and thorns. There are regions of no small size that suggest the beds of old alkali lakes. On the whole, however, the most distinct impression brought home by one who visits this country is of the veritable jungle of cacti.

Some of the desert plants, the sahuaro and the cirio, for example, are directly responsible for the presence of the woodpeckers and screech owls. Others, the low-growing species, afford homes to thrashers and wrens, to shrikes and house finches. Mile after mile, as one drives through the valleys or over the mesas, the landscape remains substantially unchanged. It differs in appearance, in vegetation, in life conditions, from anything in the United States.

Dr. Nelson has placed the dividing line between this district and the San Diegan at El Rosario River; but that is nearly a hundred miles too far south. The debatable area has no characteristics separating it from the Vizcaino Desert. On the contrary it is as much part and parcel of it as any other portion of this great expanse. There is no break at El Rosario. If the San Diegan District extends that far it must also reach at least to the borders of Baja California del Sud. For as one progresses southward the character of the landscape presents merely the changes to be expected of gradually increasing aridity. On both sides of the peninsula, as a rule, there is little vegetation for the first few miles inland. But the cactus belt, it might almost be called the cirio belt, is always present in the interior and does not break until the mountains end. Follow either coast or cross the mainland where you will, the one outstanding fact that will impress itself upon you is the homogeneity of this great sweep of territory.

It is noticeable that the bird life shows that isolation from the Colorado Desert is more ancient and much more complete than from the San Diegan District. A few striking examples, such as the gnatcatchers, the shrikes and the quail, emphasize this point more strongly than compiled lists. One would naturally expect the two deserts to merge into each other. The reason they do not, it seems to me, is to be found in the ancient shore line that encircles the Imperial Valley.

THE SAN DIEGAN DISTRICT

The western border of this district is the Pacific Ocean. I have attempted to establish an intermittent littoral strip along the coast to be added to the Coronados and especially the Todos Santos islands. Neither group is far enough from the mainland to secure isolation through distance. The open water is perhaps some six miles in one case and two in the other. The vegetation, nor as far as I have been able to observe, the conditions of life on the adjoining coast, is not sufficient excuse for the existence of strictly insular types. But the evidence obtained from bird life is so inconclusive that I have dropped the idea. Nevertheless this is done with reluctance and with a feeling that the alternative, the carrying of the San Diegan District throughout its length to the water, rings a discordant note.

Otherwise the extension of the San Diegan District into Mexico is marked with few basic changes. Near Ensenada, both north and south, the Upper Sonoran plateau approaches much more closely to the ocean than the same zone does in California. There are many places, indeed, marked with such high and precipitous cliffs that severing of the Lower Sonoran is complete. This is virtually true of the southern seventy miles, except the Ensenada Bay region. In the interior the valleys incline to be more arid than those with which we, in Upper California, are familiar. There are places where Antelope Valley seems to be reproduced. Mesquite and the joshua tree become more abundant, the cacti larger and coarser, while the sycamore is found less often than the cottonwood.

On the other hand most of the varied aspects of southwestern California are reproduced without change. I do not know a single instance of a bird which nests in San Diego County that could not reasonably be expected to be found in Lower California. In fact there are almost none I have not found. The converse also is true, if my limits be accepted. The San Diegan District contains almost no known breeders in its Mexican extension that have not been found in the United States.

There is no graduated merging of the San Diegan into other districts as one progresses southwards. Ensenada is surrounded by mountains; it is in a little pocket. The setting is typically San Diegan. So it is at Santo Tomas, even at San Vicente—and the pure Vizcaino desert is only twenty miles away.

The assumption that "somewhere below the line the two intergrade" has been made of many subspecies in ornithological literature and has seldom been sustained by facts. Nothing but disappointment awaits the explorer who expects any substantial change in the first hundred miles below the line.

THE ISLANDS

The Coronados and Todos Santos islands are clearly a continuance of Dr. Grinnell's Santa Barbara Channel group. Guadalupe is important enough in its tragic history to be assigned a district of its own. San Martin and San Geronimo islands, together with the small islets and rocks that lie in the Pacific near the Vizcaino Desert, had best be included within that district. They are the homes of sea birds and of a few rather unimportant endemic forms of life. Their choice by the sea birds is more a matter of soil condition than of geography. San Martin is a solid volcanic mass with comparatively little soil, just enough, apparently, to permit of a rather generous growth of sage and ice-plant. San Geronimo, on the other hand, is soft, with perhaps half its area barren. Its rocks are weathered and some of its cliffs have crumbled. Naturally it is preferred by burrowing birds and crevice nesters to its stern northern neighbor.

The other islands of the Pacific, notably Cedros and the Benitos, are included within the district next to be described. There remain, then, those islands in the Gulf of California that lie within the political boundaries of Baja California del Norte. It would seem at first as if they, too, should be referred to the Vizcaino Desert; for with one exception, in the San Luis Archipelago, they have no known endemic birds, and with them, too, their selection by breeding water birds seems largely a matter of finding suitable physical conditions coupled with freedom from vermin.

It is only when the breeding birds on the two sides of the Peninsula are compared that one realizes how ancient and complete is the barrier. It is true that there are to be found eight genera of water birds which are common to both seas. Even this statement must be made with hesitation, for as far as I am aware no adequate comparisons have been made to ascertain whether or not these eight are in fact identical. There are seventeen species which nest commonly on the islands of one side of Baja California del Norte and not on the other. A strip which narrows to fifty miles with no considerable elevation would hardly account for this.

Distinct species and subspecies still more emphasize the necessity of separate insular districts. For example, the Southern Western Gull (*Larus occidentalis wymani*) is found the full length of the Vizcaino Desert on the west, while some form of gull which, for want of fuller information, is called *Larus occidentalis livens,* breeds south to the 28th parallel in the Gulf. Xantus Murrelet (*Brachyramphus hypoleucus*) and Craveri Murrelet (*B. craveri*) add a last and most convincing touch, for the breeding ranges of the two are separated absolutely by the Peninsula.

There is one important point which must not be overlooked. Complications will enter into this comparatively simple scheme of dividing the islands when the waters of Baja California del Sud are reached. It is not within the field of this paper to enter upon such problems, other than to draw attention to their existence and to the fact that in the end they do not weaken the divisions here made.

SAN IGNACIO DISTRICT

From Point Rosarita to Point Pequeña I have drawn a line following the base of the mountains, roughly the hundred-foot contour. Since a considerable area is thus included it must of course be an almost level country. It has, not long since, been an ocean bed. In fact emergence is not yet complete, as witness the large and

numerous sloughs. Over its surface are scattered shells, some fossil, but many recent. The salt is strong in the soil, and the vegetation low and scanty. It is a region of fierce and long continued winds which tear down and rebuild veritable mountains of sand. I have named this district after its principal central settlement.

As but a small trangular corner of the San Ignacio District enters Baja California del Norte on the mainland, what concerns us chiefly is the geographical picture when this portion of the earth's surface was under the waters of the Pacific Ocean. I have outlined on the map a series of the probable islands. At that time this district was an archipelago which included Cedros, the Benitos, and perhaps a part of Natividad. It was also the channel between the ocean and the gulf that greatly reduced the size of Baja California del Sud and made of it one or more great islands—a condition which would seem to explain nearly all the peculiarities of faunal distribution between the two territories.

One of the most interesting fields now open to ornithological research, and one which I hope soon to explore, is comprised in these ancient islands. How far did they develop endemic bird and mammal life and how far did they retain such developments? Especially how complete, during the centuries, has been the isolation and how far has life crossed the great salt flats? If there has been an interchange of influence, from which side did it come?

San Diego, California, June 6, 1926.

THE CALIFORNIA FORMS OF *AGELAIUS PHOENICEUS* (LINNAEUS)

WITH FIVE ILLUSTRATIONS

By A. J. VAN ROSSEM

THE present paper, the first part of a proposed general revision of the forms of *Agelaius phoeniceus*, deals primarily with the distribution of the various Californian races during the breeding season. Winter ranges are touched upon only casually; for the comparative scarcity of winter record stations, particularly in the north, precludes the possibility of satisfactorily outlining the winter distribution of the subspecies even in the restricted area which is under survey at the present time.

A word of explanation regarding the individuals which are here classed as breeding birds is in order. In most cases the term is applied to birds known either to be actually nesting in a certain area, or to be about to do so. In addition, a certain small proportion of males taken prior to the breeding season is included in this category. The males of most and probably all of the western forms of *phoeniceus* select and mount guard over the future nesting sites, while the females are still drifting about the country in irresponsible flocks. These "established" males have been used in all cases where the experience and discrimination of the collector has been sufficient to give value to his opinion. Another and still smaller class includes the birds of both sexes which unequivocally represent the resident form and which are present during the proper season in the breeding metropolis of the race, but which through one cause or another chance to be non-breeders. These are principally one-year-old birds, many of which fail to breed at this age. In some cases these birds have been used; in others they have been ignored, as circumstances dictated. A considerable number of the specimens examined have no indication on their labels as to whether or not they were breeding.

This omission, while of no great moment in the case of specimens taken well along in the nesting season, has at times rendered the segregation of local series into "migrant" and "resident" lots a matter of some difficulty.

The seven races of red-winged blackbirds, which breed in California, are evidently derived from three distinct strains. The first of these now occupies a wide expanse of territory ranging from the lower Rio Grande Valley west and north through the

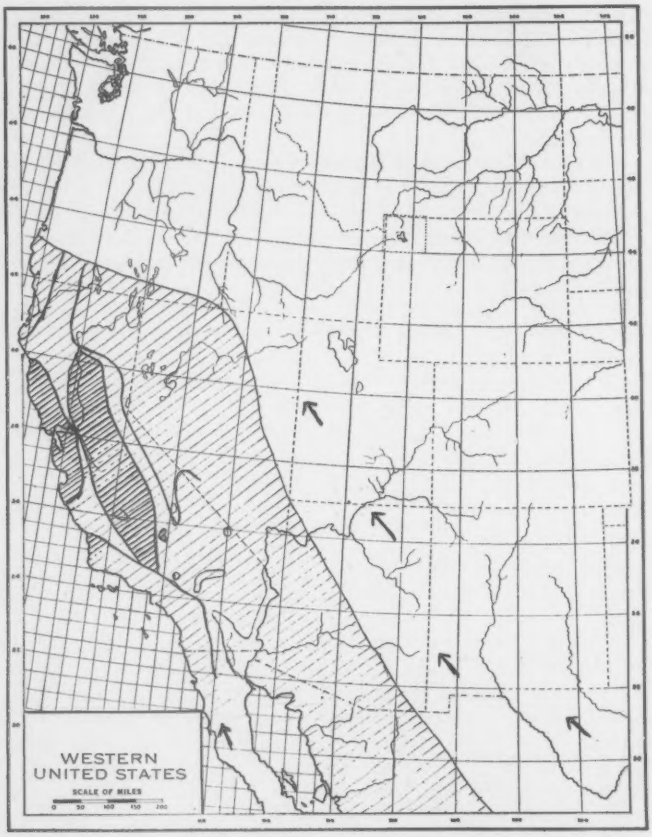

Fig. 72. Approximate range of the *"gubernator"* stock in the western United States before the invasion of the slender-billed *"phoeniceus"* strain from the southeast and the thick-billed *"phoeniceus"* strain [from the south?]. In the heavily shaded areas *"gubernator"* influence is still dominant.

Great Basin to the humid coast of Oregon and Washington. It is characterized mainly by a slender type of bill, the females are streaked and the middle wing coverts of the adult males are clear buff on their exposed portions. This stock has now become differentiated into four geographical races, namely: *megapotamus* of the Rio

Grande valley, *sonoriensis* of the Lower Sonoran deserts of Arizona, California and northwestern Mexico, *nevadensis* of the Great Basin region in general, and *caurinus* of the humid northwest coast of Oregon and Washington. In matters of coloration, this strain follows the usual trend of plastic species in western North America. In other words, the richest colored form is found in the humid northwest coast belt, while the palest form occupies a region of extreme aridity. Fringes of the last three of the races named above occur in the eastern and northern parts of California.

The second strain is characterized by a heavy bill, and, like the first, the females are streaked and the males are of the buff-winged type. It is represented in southwestern California by *neutralis,* but its influence extends well into central California. The data seem to point to the probability that this stock originated somewhere in southern Mexico and that one branch has worked north and developed into the *fortis* type, culminating in *arctolegus* in the extreme north, while another offshoot has pressed northwestward into California to become *neutralis.* The red-wings of Nayarit (Tepic) are of this general thick-billed type and they probably represent, if not the original stock, at least a link in the parent chain from which this thick-billed strain was derived. The suggested method of entry into California is frankly speculative. To begin with, there is no unbroken chain of races, such as exists in *megapotamus, sonoriensis, nevadensis,* and *caurinus,* reflecting the development and spread of the slender-billed group. However this may be, there is evidently a close relationship between *nyaritensis*[1], *fortis, arctolegus,* and *neutralis,* which represent variations from a common thick-billed, buff-winged stock.

The third strain is typified by races in which the females are uniformly dark rather than streaked and in which the middle wing coverts of the males are black instead of buff. It is probable that this was the type which originally occupied western North America, from the southern end of the Mexican plateau north at least to southern Oregon and east in the United States at least to central Nevada and central Arizona. In times past, its northern limit was probably regulated by climatic conditions just as is the northern limit of *arctolegus* today. Since the invasion of the slender-billed stock from the southeast and the thick-billed stock from the south, the primitive dark-colored race has been more or less completely eliminated by absorption. This replacement is most complete, of course, along the first line of contact, and in consequence only traces of *"gubernator"* influence are discernible today along this presumptive line. Proceeding westward, evidences of mixed ancestry become more and more apparent, and in portions of central California the old stock is still dominant. This mixture of the original inhabitants with two invading stocks has resulted in a confusion of characters almost without parallel.

Age must be taken into consideration in making determinations. The variation of the shape of the bill with age is of particular importance. It is short and blocky in the juvenile and becomes more attenuated as the birds grow older; thus one-year old birds, particularly among the males, have stubbier bills than adults. For example, one-year old males of *nevadensis* have bills not unlike adults of *neutralis,* although there is little likelihood of confusing the two forms, provided birds of similar age are compared. One-year-old birds of both sexes average a good deal smaller than older specimens. The one-year-old male is usually easily distinguished by impure red lesser coverts, by variegated and often extensively black middle coverts, by a greater or lesser amount of rusty or grayish tipping of the feathers in general, and by a brownish, lusterless tone of plumage. Failure to appreciate certain of these differences has led to some of the many erroneous extralimital records of *"gubernator".* The age of

[1] Proc. Biol. Soc. Wash., vol. 38, 1925, pp. 131-132.

females is not so well indicated; as a rule, the lesser coverts in this sex are tipped with olive in the young, and with dull red in the adults. It is probable that the lesser coverts become increasingly brilliant with age. At any rate, in most of the Californian forms, the juvenile female has been found to molt into an olive-tipped lesser covert, and birds with this type of covert have consequently been classed as one-year-olds.

a *b* *c*

Fig. 73. Age variation in the bills of males of *Agelaius phoeniceus nevadensis*
a, adult (J-1467) *b*, 1 year old (K-178) *c*, juvenile (E-203)
Specimens in collection of Donald R. Dickey

These birds also have a less durable plumage and the streaking is not as sharp and clear as in the adult. Females of the slender-billed group average more brilliant on the shoulders than is usual, and first fall females often have a certain amount of red on the lesser coverts.

My opinion as to which characters will prove most reliable in identifying the Californian races is covered in the following synopsis.

Agelaius phoeniceus neutralis Ridgway

San Diego Red-winged Blackbird

Agelaius phoeniceus neutralis Ridgway, Proc. Wash. Acad. Sci., vol. 3, 1901, p. 153. (Jacumba, San Diego County, California.)

Diagnosis.—Similar to *Agelaius phoeniceus californicus* in size and shape of bill. Males with exposed portions of middle wing coverts more extensively buffy, often unmarked with black. Females more streaked (less blackish below) and with coloration paler throughout. Differs from *Agelaius phoeniceus nevadensis* in heavier bill in both sexes, and in broader streaking on underparts of the females.

Measurements of 13 adult breeding males, San Diego and Orange counties, California:

Wing	Tail	Culmen from base	Depth at[1] base	Tarsus	Middle toe minus claw
121.0-130.5	86.5-98.5	22.3-24.1	11.4-13.3	28.4-31.2	21.0-23.6
(125.5)	(92.0)	(23.2)	(12.5)	(30.1)	(21.9)

Measurements of 5 breeding females from San Diego and Orange counties, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
100.5-105.5	72.5-77.0	19.3-20.5	10.6-11.2	25.5-26.6	18.5-19.5
(103.7)	(74.3)	(19.8)	(11.0)	(26.2)	(18.9)

[1] Depth at base, as here used, is always the distance from the posterior lower corner of mandible to the highest point of the culmen.

Range.—Pacific drainage from Sierra Juarez, Lower California, to west-central San Luis Obispo County, California.

Remarks.—*Neutralis* is a common resident in all suitable localities in the San Diegan Faunal Area. Along the southeastern boundary of its range there is, because of environmental conditions, no intergradation with *sonoriensis*. Intergradation may occur in the San Gorgonio Pass region of Riverside County, but there is no direct proof of this possibility. The easternmost station for *neutralis* in this region is Redlands, while a tongue of *sonoriensis* extends up into Coachella Valley on the desert

side. Between these two points there is extensive cultivation which will probably, sooner or later, bring the two races into contact. Some form of red-wing had a small colony in a swampy area in Chino Cañon, near Palm Springs, in 1922. A special trip to investigate this colony was made in 1923, but no red-wings were found there that year. Several old nests, however, testified to their former presence. These birds may possibly have formed an outpost of *neutralis*, for several other San Diegan forms have gained a foothold there, among them *Melospiza melodia cooperi, Pipilo fuscus crissalis, Psaltriparus minimus minimus, Chamaea fasciata henshawi* and *Dryobates*

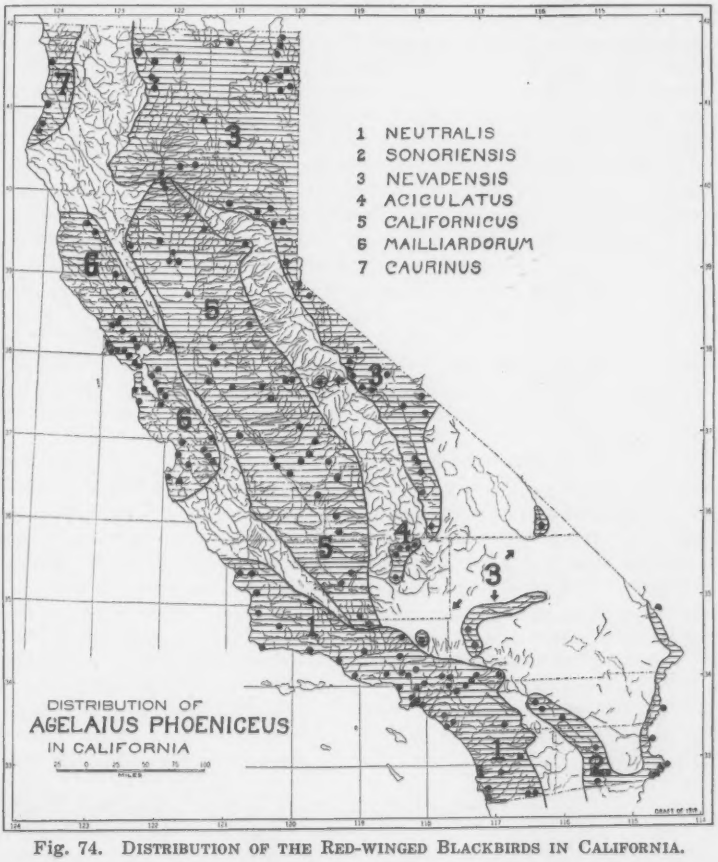

Fig. 74. Distribution of the Red-winged Blackbirds in California.

nuttalli. However, until breeding red-wings are collected from that or other nearby points there is no exception to the statement that *neutralis* is confined during the breeding season to the coastal slope. The breeding series from the San Bernardino district averages somewhat longer in bill than typical *neutralis*. This may indicate a tendency toward *sonoriensis* of the Colorado Desert or toward *nevadensis* of the Mohave Desert. Birds from below the San Diego–Lower California line represent *neutralis* in its best development.

From the Lower California border northward there is a steadily increasing average of black shown on the exposed portions of the middle wing coverts of the males. The females change more abruptly and retain, for the greater part, the *neutralis* type of coloration well north into central Los Angeles County. From the San Fernando Valley northward there is a noticeable change toward *californicus,* black-bellied females occurring occasionally in the San Fernando Valley and Elizabeth Lake regions. In other words, there is a gradual change in the case of the males and a more abrupt change in the females from *neutralis* directly into *californicus.* These two races are very much alike in size and bill. In fact, after having examined 554 specimens I can point to only average color differences to distinguish them. In the vicinity of Tejon Pass in extreme northwestern Los Angeles County, and Cuddy Valley at the east base of Mount Pinos, the black on the middle coverts of the males averages in excess of buff, and the black-bellied type of female outnumbers the streaked type. These points, therefore, arbitrarily mark the southern boundary of *californicus.*

Proceeding westward and northward from Los Angeles County through Ventura and Santa Barbara counties, there seems to be no direct contact with *californicus,* and the females therefore are characteristically streaked. They do, however, average darker than birds from more southern points. The males show an ever increasing amount of black on the middle coverts; but even so far north as Guadalupe Lake, Santa Barbara County, the buff averages predominant over the black. Breeding material from San Luis Obispo County seems to be scarce. I have been able to examine but three adult males and a single year-old male. These are nearer to *neutralis* in measurements but nearer to *mailliardorum* (described below) in color. Because of the absence of females, and taking into consideration the wide gap in San Luis Obispo and Monterey counties, from which no material has been seen, it would appear best for the present to call the San Luis Obispo birds *neutralis,* though they are far from typical.

While it is not the purpose of this paper to go into the subject of the winter ranges, still it may be well to correct here the popular misconception regarding the occurrence of *californicus* in winter in the San Diegan Faunal Area. As has been stated above, the differences between *californicus* and *neutralis* are only average ones, and occasional breeding males from as far south as San Diego County have the middle coverts extensively black. Individual males of this type when taken in winter have often been labeled *californicus.* The point I wish to make is that (with a single exception) every condition observable in winter-taken specimens can be duplicated in breeding birds. The exception is an adult male, no. 10,848, collection of Louis B. Bishop, taken at Witch Creek, San Diego County, April 13, 1904, by H. W. Marsden. This bird has the middle coverts more completely black than any breeding example of *neutralis* so far examined. In view of the date, however, it may be actually a breeding bird. It is equally possibly a vagrant. For the present I prefer to leave the question of its identity open.

Neutralis is resident in the sense that the breeding area is co-extensive with the winter range. A single exception to this statement is an adult male, no. 8205, Museum of Vertebrate Zoology, taken six miles west of Imperial, Imperial County, May 6, 1909, which is unquestionably referable to *neutralis.* This would appear to be a remarkable occurrence both as to time and place.

Specimens examined.—246, of which 174 represent breeding material from the following localities: Lower California: El Rayo in the Sierra Juarez; California: San Diego County: Jacumba, Campo, Lakeside, San Diego, 15 miles north of San Diego, National City, Witch Creek, Del Mar; Orange County: Laguna Beach, Anaheim Landing, head of Laguna Cañon, Capistrano; Riverside County: Riverside, Corona,

Aguanga; San Bernardino County: Redlands, Chino, 6 miles south of Chino, San Bernardino, Colton; Los Angeles County: San Fernando Valley, Alla, Nigger Slough, El Monte, 3 miles west El Monte, Elizabeth Lake, Calabasas, Pomona, Cerritos, Downey, Rancho La Brea, Long Beach, Bassett, Baker, Greening, Pasadena; Ventura County: Point Mugu, Fillmore, Ventura; Santa Barbara County: Santa Barbara, Guadalupe Lake, Point Concepcion, Los Alamos; San Luis Obispo County: Morro, Cuyama Valley at 1900 feet, Santa Margarita, Arroyo Grande.

Agelaius phoeniceus californicus Nelson

California Red-winged Blackbird

Agelaius gubernator californicus Nelson, Auk, vol. 14, 1897, p. 59. (Stockton, California.)

Diagnosis.—Bill similar in shape and size to *Agelaius phoeniceus neutralis*, but males with exposed portions of middle wing coverts more extensively black, rarely clear buff, sometimes entirely black, but usually with a small amount of buff visible, particularly on distal middle coverts. Females averaging much darker throughout and less streaked (more blackish) below. Differs from *Agelaius phoeniceus mailliardorum* in much heavier bill in both sexes. Males with longer tails, and with middle wing coverts less frequently entirely black. Females with slightly shorter wings, underparts usually more streaked, and coloration paler throughout.

Through the courtesy of Dr. Charles W. Richmond, of the U. S. National Museum, I have been privileged to examine the type of *Agelaius gubernator californicus* Nelson. It is an adult female, no. 74,278, U. S. Nat. Mus., collected at Stockton, California, April 17, 1878, by Lyman Belding. Attached to the type is the wing of a male and on the collector's original label is written, "mates—male and female". These data definitely place the type as a breeding individual. In characters, it is representative of the thick-billed interior race and in no way distinguishable from the general run of San Joaquin–Sacramento Valley females. The wing of the male, which is tied to the type, is typical of the interior bird. There is a noticeable amount of buff visible on the distal middle coverts between the red lesser coverts and the black tipping.

Measurements of 24 adult breeding males from San Joaquin County, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
121.0-131.0	87.5-97.5	20.9-24.8	11.6-13.0	28.2-31.6	20.0-22.8
(125.7)	(92.3)	(22.8)	(12.3)	(29.4)	(20.7)

Measurements of 4 adult breeding females from San Joaquin County, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
101.5-106.0	73.0-77.5	18.9-19.7	10.0-11.4	26.0-26.7	19.0-20.1
(103.8)	(74.9)	(19.2)	(10.6)	(26.5)	(19.6)

Range.—Tejon Pass, in extreme northwestern Los Angeles County, north through the San Joaquin–Sacramento Valley to about four miles south of Red Bluff, Tehama County, California. East in suitable localities into the Sierra Nevada foothills; west to the eastern slopes of the inner coast ranges and to, but not including, Suisun Bay.

Remarks.—The question of the specific distinctness of the *"gubernator"* type of red-wing from the *"phoeniceus"* type has long been debated. Mr. Joseph Mailliard (Condor, vol. 12, 1910, pp. 63-70) was probably the first to demonstrate that the two types were connected by every degree of intergradation and to propose that the name of the California Bicolored Blackbird should become *Agelaius phoeniceus californicus*. With his findings in this regard, I am in absolute agreement. As discussed at length under *neutralis*, the differences between *neutralis* and *californicus* are matters of average coloration. South of the Tejon Pass, the females are, with occasional exceptions, streaked. North of that point, they are usually of the dark-bellied type. Throughout the range of *californicus*, however, females do occur which are indistinguishable from *neutralis*, and in some localities they even outnumber the dark type. The same variation holds good with the males. South of Tejon Pass, the exposed portions of the middle coverts average with buff in excess of black. North of that

point the reverse is true, but individual variation anywhere within the range of *californicus* may produce males which cannot be distinguished from *neutralis*. The transition from *californicus* into *nevadensis* is abrupt and will be dealt with under the latter form. *Californicus* is particularly subject to local variations. One of the most pronounced of these occurs in the San Joaquin Valley, in Merced and Stanislaus counties; birds from this region have heavier bills than the average, and *"phoeniceus"* tendencies come out strongly in a high percentage of individuals.

An extremely interesting case of potential invasion of the range of a dark *"gubernator"* form by a bird of the *"phoeniceus"* type is illustrated by an adult male, no. 33,807, collection of Louis B. Bishop. This bird is marked as having been in full breeding condition, and was taken by Dr. Bishop at the mouth of the Carmel River in Monterey County, June 24, 1922. Every character exhibited by this specimen is typical of the *"phoeniceus"* extreme, which is reached by *californicus* in the vicinity of Los Baños. In its heavy swollen bill, clear buff coverts, and general measurements, it is the very antithesis of *mailliardorum,* the common breeding form of the region in which it was collected. If this bird was actually nesting on the spot where it was taken, then we will have a case of two subspecies breeding in the same locality, and however rare such a condition may be, it will serve as a present-day example of what the writer firmly believes has occurred in the past over a wide area in western North America.

The one-year-old males of the dark races more nearly resemble the adults than do the young males of the *"phoeniceus"* type. The tipping and edging usually so conspicuous in the lighter races is not only darker but also narrower and very often has disappeared altogether by spring. Another condition observed is that the red shoulders frequently come in with the first fall plumage substantially as in the adults. The first year plumage is less durable in character, and young birds by May 1 are in very much the same condition in so far as abrasion and fading are concerned as are adults by June 15, or even by July 1. The orange hue so frequently observed on the shoulders is almost invariably, perhaps always, due to immaturity, and all such birds examined have been young of the previous year. One-year-old males in the extreme development of plumage are almost indistinguishable from adults. They average a more rusty black, however, the bills are usually less attenuated and the wings and tails decidedly shorter. The proportion of streaked one-year-old females to the dark type seems to be higher than in adults. The state of plumage is probably in the main responsible, but many young females are as dark as any adults examined.

Specimens examined.—309, of which 252 represent breeding birds from the following localities: Los Angeles County: Gorman Station in Tejon Pass; Kern County: Cuddy Valley in the vicinity of Mount Pinos, Bakersfield, Buena Vista Lake; Tulare County: Dinuba, Earlimart, Tipton; Kings County: Hanford; Fresno County: Centerville, Clovis, Fresno, 13 miles southwest of Fresno, 1½ miles north of Mendota, 2 miles north of Mendota, 2 miles south of Mendota; Madera County: Lane's Bridge, 10 miles southwest Raymond; Mariposa County: 3 miles northeast Coulterville, Dudley; Merced County: Snelling, Los Baños; Stanislaus County: 2 miles southwest Lagrange, Modesto; San Joaquin County: Tracy, 6 miles southwest Galt, Stockton, 2 miles west Stockton; Yolo County: 2 miles north of Knight's Landing; Amador County: locality not specified; Colusa County: Colusa, 8 miles northeast Colusa, Butte Creek, Fouts Springs; Sutter County: 1 mile west of West Butte; Nevada County: Columbia Hill; Butte County: 4 miles east of Chico, 4 miles north of Oroville; Glen County: 3 miles east of Norman; Tehama County: 4 miles south of Red Bluff, 7 miles south of Red Bluff.

Agelaius phoeniceus mailliardorum, subsp. nov.[1]

San Francisco Red-winged Blackbird

Diagnosis.—Similar to *Agelaius phoeniceus californicus*, but bill smaller and less swollen at base. Females with wing averaging slightly longer, coloration darker and posterior underparts rarely streaked. Males with exposed portions of middle wing coverts usually entirely black.

Type.—Adult female, no. 14,645, collection of Donald R. Dickey; Palo Alto, Santa Clara County, California; April 28, 1901; collected by Theodore J. Hoover, original no. 797.

Description of type.—Supraloral region, lower eyelid and extreme anterior portion of malar region, grayish brown, freckled with darker; auriculars, posterior portion of malar region and sides of throat, fuscous black; superciliary stripe obsolete and indicated only by a few short grayish streaks; chin buffy gray; median portion of throat and upper chest heavily streaked with color of under parts and buffy gray, the former predominating. Lesser wing coverts edged with brownish red on anterior and inner portions, changing to dark olive next to middle coverts. Rest of plumage chaetura black, obsoletely edged with dark brown on head and interscapular region, and with dark gray on sides of neck, and with pale gray on median portions of outer webs of outer primaries. Bill black, changing to dark horn brown near base of mandible; tarsi and feet black; wing, 105.0; tail, 72.0; culmen from base, 18.7; depth at base, 9.6; tarsus, 26.1; middle toe minus claw, 18.8.

Measurements of 15 adult breeding males from Santa Clara and San Mateo counties, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
120.0-131.5	82.0-92.0	20.1-23.4	10.8-11.8	27.6-30.0	19.1-22.9
(124.4)	(87.0)	(21.9)	(11.1)	(29.2)	(21.0)

Measurements of 10 adult breeding females from Santa Clara and San Mateo counties, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
104.0-108.5	70.5-76.5	18.0-20.1	9.3-10.6	25.4-27.4	17.8-20.4
(105.7)	(73.4)	(19.0)	(9.9)	(26.2)	(18.8)

Range.—Central coast region of California from central Monterey County north at least to Sherwood, Mendocino County; east to include Suisun Bay and the western slopes of the inner coast ranges.

Remarks.—Mailliardorum is the darkest of the races of *Agelaius phoeniceus* found in the United States and probably represents in the least diluted form the formerly widespread stock which has so plainly left its mark throughout the west on the invading *"phoeniceus"* strain. Females of the streaked type occur rarely. In San Benito County there is, as would be expected, a tendency toward streaking which reflects the proximity of *californicus;* and in Mendocino County, where an approach to *caurinus* takes place, the same condition is observed. These streaked females are darker than the corresponding type of *californicus,* and they are of course distinguishable by smaller bill. However, streaked birds are far less common than is generally supposed. I am well aware that this statement will not be universally admitted, but the material examined appears to be conclusive on this point.

The misapprehension in this regard has arisen from the fact that *nevadensis,* to mention only one wandering form, is a common migrant and winter visitor over a good part of California and many of the birds linger in the spring on the breeding grounds of other forms. This is particularly true of such one-year-old birds as are non-breeders, and during the early part of the breeding season *nevadensis* has been found in breeding colonies of *californicus, aciculatus, neutralis* and *sonoriensis.* Indeed, in April on the breeding grounds of *aciculatus,* both *californicus* and *nevadensis* occur

[1] Named for Messrs. John W. and Joseph Mailliard, in appreciation of their valuable work with the Red-winged Blackbirds of California.

as vagrants or migrants while the resident form is breeding. Applying field experience gained with the various forms mentioned above to the conditions observable among a large series of spring birds from the range of *mailliardorum*, the same state

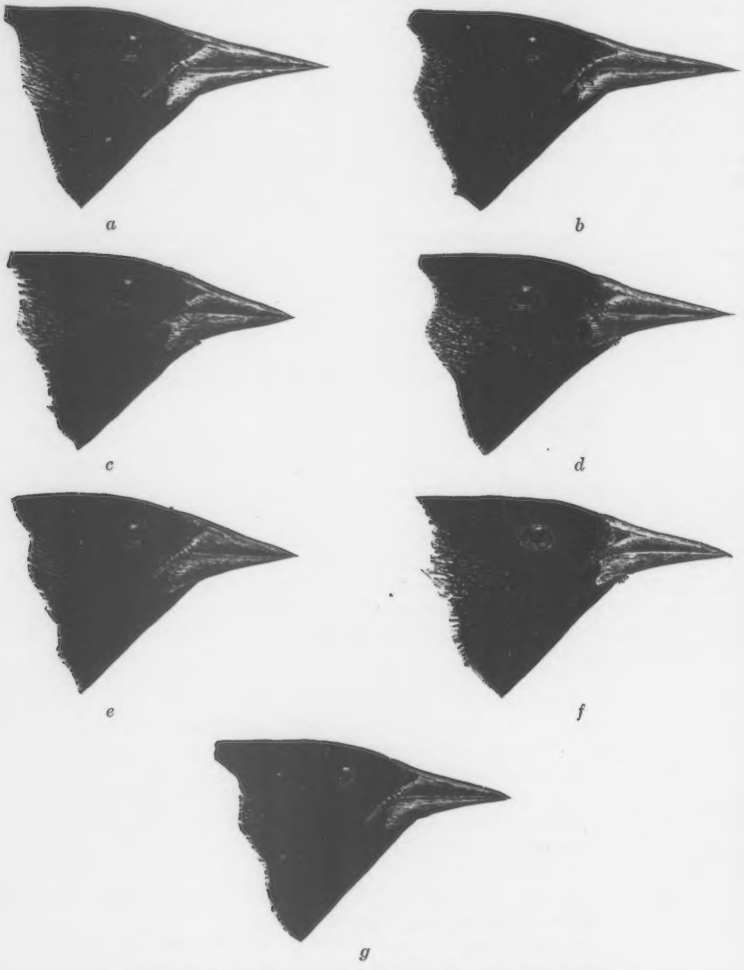

Fig. 75. Bills of typical adult males of *Agelaius phoeniceus*
a, aciculatus (J-219) *b, caurinus* (14,755)
c, neutralis (J-435) *d, sonoriensis* (J-636)
e, californicus (12,553) *f, nevadensis* (J-1467)
g, mailliardorum (KX-12)
Specimens in collection of Donald R. Dickey

of affairs is found. A great many streaked females which have been labelled as belonging to the resident form are indistinguishable from breeding examples of *nevadensis*, others are *caurinus*, while only comparatively few really represent the breeding form.

Some hesitation is felt in applying the name *mailliardorum* to the red-wings of the Suisun Bay region. They are not of the strictly intermediate type which would have been anticipated on geographic grounds; but as their measurements average closer to *mailliardorum* than to *californicus*, they have been referred to the former race. The bills of these birds, while less swollen at the base than in *californicus*, being practically the same as *mailliardorum* in this regard, average longer than typical birds of either form. Occasional specimens which are very similar to these also occur in the southern parts of Sonoma County. In general, the bills of *mailliardorum* from north of San Francisco Bay average slightly longer and more slender than do those from south of that point. The Suisun Bay birds simply represent this tendency in its maximum development.

The present gaps between the known ranges of *neutralis* and *mailliardorum* in the south and between *caurinus* and *mailliardorum* in the north in all probability are due simply to lack of material from these areas. Future field work will undoubtedly show continuous and actual intergradation in both areas, such as occurs between *mailliardorum* and *californicus* in San Benito County.

Mailliardorum is apparently resident. There are undoubtedly local seasonal shifts of population, but I have seen no winter specimens taken outside of the breeding range. The interesting occurrence of a male *californicus* in full breeding condition at the mouth of the Carmel River in Monterey County where *mailliardorum* is the common breeding form is discussed under *californicus*.

Specimens examined.—242, of which 212 are breeding birds from the following localities: Monterey County: Moss Landing, mouth of Carmel River, Carmel, Salinas; Santa Cruz County: Santa Cruz Mountains; San Benito County: Paicines, Tres Pinos, Hollister; Santa Clara County: Palo Alto, Pacheco Pass; San Mateo County: South San Francisco, Half Moon Bay, Salada; Alameda County: Bay Farm Island, Hayward, Newark, Alameda; Contra Costa County: "near Alameda"; Solano County: Suisun, Grizzly Island; Marin County: Drake Bay, Nicasio, Black Point, 5 miles west of Inverness, Point Reyes Station, Tiburon, Corte Madera, San Geronimo; Sonoma County: Petaluma, Santa Rosa, Freestone, Sebastopol, Cotati; Lake County: Lakeport, Glenbrook; Mendocino County: Sherwood, Willitts.

Agelaius phoeniceus aciculatus Mailliard

Kern Red-winged Blackbird

Agelaius phoeniceus aciculatus Mailliard, Condor, vol. 17, 1915, pp. 12-15. (Isabella, Kern County, California.)

Diagnosis.—Size larger and bill longer than in any other Californian race. Males very similar to *californicus* both in individual and average amount of black present on exposed portions of middle wing coverts. Females also paralleling *californicus* in variability, but coloration richer; feather edgings, where present, stronger in tone, with rich browns and buff at a maximum; grays at a minimum.

Measurements of 22 adult breeding males from Kern County, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
123.0-131.5	89.0-103.0	25.0-30.3	11.5-13.0	30.2-32.3	21.7-24.0
(126.7)	(95.1)	(27.6)	(12.5)	(31.1)	(23.0)

Measurements of 19 adult breeding females from Kern County, California:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
102.5-107.5	73.5-81.0	22.1-24.6	10.4-11.3	26.0-28.1	18.5-21.0
(104.2)	(77.4)	(23.1)	(10.9)	(27.2)	(20.1)

Range.—Mountain meadows along Kern River and tributary streams in Kern County, California, from Walker Basin north and east to Weldon.

Remarks.—The limited range known to be occupied by this exceedingly well marked race may be extended somewhat when points north and south of its known

metropolis have been investigated. At the present time there is little evidence that *aciculatus* breeds beyond the boundaries indicated above. In this connection I am unable to recognize, as *aciculatus,* the breeding red-wings recorded from the Yosemite by Grinnell and Storer (Animal Life in the Yosemite, 1924, pp. 400-403), for the two specimens so far available (in Mus. Vert. Zool.) fall with *nevadensis* in every particular except for the bill-length in the male, which is certainly exceptionally long (27.9). It is possible that this reflects a tendency toward *aciculatus* rather than an aberrant individual condition, and a series of birds from the Yosemite may alter my present opinion. I know of no specimens of *aciculatus* from the Tehachapi Pass region nor from the mountains between Weldon and the Yosemite.

In view of its coloration *aciculatus* is obviously of *"gubernator"* origin, and because of its isolated habitat it has not been affected by the thick-billed *"phoeniceus"* stock which is now dominant in the San Diegan Faunal Area and in parts of the San Joaquin Valley. Such modification as has taken place has come from the east, from the slender-billed chain, as is at once apparent from bill proportion and shape. The increase in size has probably developed as a local condition, for similar propensities are to be seen in at least one other species from the same region (Dickey and van Rossem, Condor, vol. 24, 1922, p. 209).

Aciculatus departs entirely from its breeding grounds directly after the nesting season. The bulk of the individuals probably winter in the San Joaquin Valley, but because of their comparatively limited numbers the collecting of one is a matter of chance. There is at hand a female taken at Buena Vista Lake on December 30, a young male from the same locality April 14 (not breeding), and an adult male from Corona, Riverside County, December 8. The Corona male is not typical but is best referable to this race.

Agelaius phoeniceus sonoriensis Ridgway

Sonora Red-winged Blackbird

Agelaius phoeniceus sonoriensis Ridgway, Manual of North American Birds, 1887, pp. 369-370. (No type locality in original description, but type later designated as from Camp Grant, Arizona.)

Diagnosis.—Of the slender-billed *sonoriensis-nevadensis-caurinus* chain. Bill longer and more slender than in *nevadensis* and of different shape than in *caurinus.* Males with middle wing coverts more often and more extensively marked with black than in *nevadensis,* and therefore not to be confused in this respect with *caurinus* which is, except in the extreme southwest corner of its range, essentially an immaculate buff-winged form. Pale tipping of feathers in fall plumage more extensive and paler than in the other Californian races, and very frequently persisting (even in fully adult males) on the interscapular region until the bird is in worn (late May) plumage. Females by far the palest of the Californian races. Paler and with narrower ventral streaking than in *nevadensis;* paler and less buffy than in *caurinus,* with markings more diffused (less contrasted) than in that form.

Measurements of 45 adult breeding males from Colorado River Valley in California and Arizona:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
120.0-130.5	86.3-97.5	22.5-26.9	10.3-12.4	27.5-30.6	20.5-22.5
(125.4)	(92.8)	(24.8)	(11.3)	(29.5)	(21.9)

Measurements of 18 adult breeding females from Colorado River Valley in California and Arizona:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
101.5-112.0	72.5-80.5	19.3-21.4	9.5-10.7	24.8-27.3	17.6-20.3
(104.5)	(76.7)	(20.6)	(10.0)	(26.1)	(19.8)

Range in California.—A narrow strip along the Colorado River through its entire Californian course; also irrigated portions of the Imperial Valley north and east to at least 7 miles west of Indio, Riverside County.

Remarks.—Agelaius longirostris was described by Salvadori[1] from a male (evidently adult) which supposedly came from "western Mexico". The measurements given (wing, 111.0; tail, 81.0; tarsus, 28.0; culmen, 27.0; height of bill, 10.0) certainly preclude the possibility that this specimen came from anywhere within the range of *sonoriensis*. Dr. Nelson[2] showed this to be the case some years ago. It may be appropriate to note in this connection that the name is a homonym and inapplicable in any event, Vieillot[3] having used it to describe the Troupial, *Icterus icterus* (Linnaeus).

Through the courtesy of the officials of the United States National Museum the type of *Agelaius phoeniceus sonoriensis* has been sent to me for examination. It is a young female in first winter plumage, no. 49771, U. S. Nat. Mus., Camp Grant, 60 miles east of Tucson, Arizona, February 10, 1867, collected by E. Palmer. This locality is east of the established breeding range of *sonoriensis* as now understood and in a region occupied by both *fortis* and *nevadensis* in winter. Mr. Ridgway[4] himself gives the type locality as "Mazatlan, w. Mexico." It is unfortunate that the type was not selected from this latter locality, for Mazatlan birds are essentially the same as Colorado River valley specimens. In color, the type is not quite like the average from the metropolis of the race and its bill is shorter than any other female *sonoriensis* so far examined. It recalls certain young females of *fortis* in some particulars and its identity may yet be shown to lie in that direction. However, the case demands further material for final solution and I continue to apply the name, for the present, to the birds inhabiting the lower Colorado River and its tributaries and the coastal districts of Sonora and Sinaloa.

The pallid coloration of female *sonoriensis* is reflected in the males, both adult and young. The pale tipping of the feathers of the fall plumage is not only paler than in any other Californian race, but is broader and more extensively distributed. Many fully adult males retain portions of it on the interscapular region until as late as the end of May. The amount of black on the middle coverts is variable, but generally a slight amount is present. Thirty-five out of the 45 adult breeding males from California have amounts ranging from a trace to black very much in excess of buff; in other words, only 10 out of 45 have immaculate buff middle coverts. There is little, if any variation, in this regard between northern and southern extremes; and Mazatlan examples are similar to those from the Colorado River valley. In the eastern parts of the range, however, such as south-central Arizona, males showing black in the middle coverts are of much less frequent occurrence. Although most males show evidences of *"gubernator"* blood, only 5 out of 33 females exhibit any decided trend in that direction. In these there is a smoky gray wash of varying darkness over the whole plumage, except for the chin and throat, which stand out in decided contrast. As noted under *neutralis*, the most persistent character indicative of mixed ancestry is the black in the wing coverts of the males. Specimens from Coachella Valley (Mecca, Thermal, Indio) have somewhat thicker bills than those from the Colorado River valley, which may indicate a tendency toward *neutralis*. *Sonoriensis* only rarely straggles into the San Diegan Faunal Area after the breeding season, as at Redlands, January 10 (adult female no. 8304, collection of Louis B. Bishop), and Jamacha, San Diego County, October 15 (females of the year, nos. 2801 and 2806, collection San Diego Natural History Museum). The greater part of the California population is resident and exceedingly destructive to crops in cultivated districts.

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[1] Atti. R. Accad. Scienz. Torino, vol. 9, 1874, pp. 632-633.*
[2] Auk, vol. 17, 1900, p. 125.
[3] *Agelaius longirostris*, Vieillot, Nouv. Dict. D'Hist. Nat., 34, 1819, p. 547.*
* Citations verified to the originals by Dr. T. S. Palmer and Dr. Alexander Wetmore.
[4] Birds of North and Mid. Amer., pt. 2, 1902, p. 338.

Specimens examined.—210, of which 96 are breeding birds from the following localities: Arizona side of the Colorado River: 10 miles below Cibola, 5 miles north of Laguna, Ehrenberg; California: Fort Yuma, 5 miles northeast of Fort Yuma, Bard, 3 miles northwest of Calexico, Calipatria, 5 miles west of El Centro, El Centro, Thermal, Mecca, 7 miles west of Indio.

Agelaius phoeniceus nevadensis Grinnell

Great Basin Red-winged Blackbird

Agelaius phoeniceus nevadensis Grinnell, Proc. Biol. Soc. Wash., vol. 27, 1914, p. 107. (Quinn River Crossing, Humboldt County, Nevada.)

Diagnosis.—Bill stouter than in *caurinus* or *sonoriensis*, but still decidedly more slender than in *neutralis*. Males with exposed portions of middle wing coverts usually clear buff, but frequently with a small amount of black present, and occasionally with the exposed black even predominant over the buff. Females decidedly less buffy than *caurinus* and with darker and broader ventral streaking than in *sonoriensis*. Not always distinguishable from *neutralis* in coloration, but streaking below averaging narrower and sharper, and bill diagnostic if similar ages are compared.

Measurements of 15 adult breeding males from Humboldt County, Nevada:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
121.0-128.0	88.0-96.5	23.9-26.2	11.2-12.8	28.2-30.9	20.2-23.0
(124.3)	(91.7)	(25.1)	(11.9)	(29.5)	(21.7)

Measurements of 6 adult breeding females from Humboldt County, Nevada:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
99.5-105.0	73.0-77.5	20.1-21.4	9.8-10.5	25.4-27.4	17.2-19.6
(102.3)	(74.5)	(20.8)	(10.1)	(26.3)	(18.7)

Range in California.—Northeastern section of the state from the Oregon and Nevada boundaries south and west to Yreka and Sisson, Siskiyou County, and to Red Bluff and Paynes Creek, Tehama County; thence southeast along the eastern side of the Sierra Nevada to Little Lake, Inyo County. Isolated colonies in the Yosemite Valley, and at several points on the Mohave Desert where local conditions are suitable, as along the Mohave River in San Bernardino County and at Palmdale, Los Angeles County. Shoshone, Inyo County, may not be a breeding station, but such is indicated by a single bird taken May 14; it is also possible that the Little Lake and Palmdale specimens do not actually represent breeding birds.

Remarks.—This widespread link in the slender-billed chain is a common summer visitor to the eastern and northeastern sections of California. In common with other western races, it is subject to local modifications; but these variations are mainly, if not entirely, caused by contact with other races. Individual variations are particularly common in the more western parts of the range. These are in the main variations in the darkness of the underparts of the females and in the presence or absence of black in the middle wing coverts of the males—the usual evidences of mixed ancestry.

The transition from *californicus* to *nevadensis* in the extreme northern end of the Sacramento Valley is abrupt and well defined. Breeding specimens from points seven miles and four miles south of Red Bluff, Tehama County, are clearly referable to *californicus*, while at Red Bluff itself birds occur which are indistinguishable from *nevadensis* from other parts of its California and Nevada range. Females from northern and northeastern California average darker than do those from farther south. Occasional examples occur from the northern part of the state in which the belly is nearly uniform black. Such birds are often decidedly closer to *californicus* in point of color than to *nevadensis*, but their slender bills prevent confusion. Dark-bellied females also crop up occasionally elsewhere in California and to a lesser degree in Nevada, but here again the bills are diagnostic.

By far the majority of the males of this race have immaculate buff middle coverts, but many individuals have traces of black, and occasionally the black is in excess of buff.

This form seems to have a wide winter range. It is common in fall, winter and spring west of the Sierras, from San Francisco Bay south to the Lower California boundary. Its manner of occurrence in winter in the northern and eastern parts of the state is not satisfactorily determined at present.

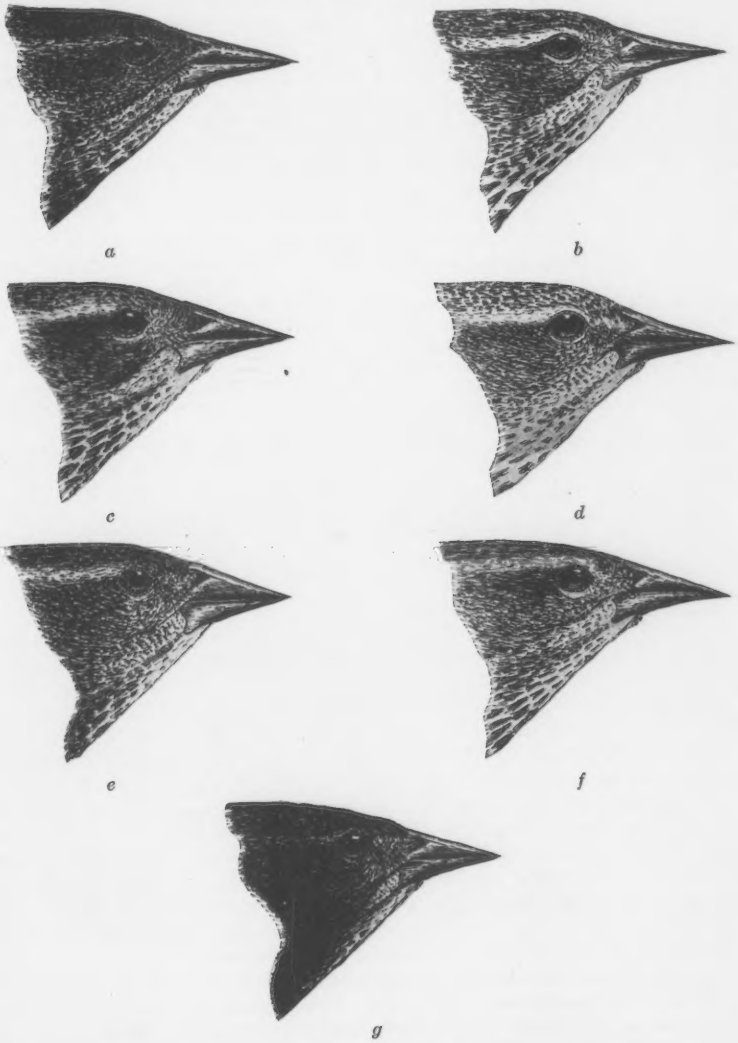

Fig. 76. Heads of typical adult females of *Agelaius phoeniceus*
a, aciculatus (J-241) *b, caurinus* (14,758)
c, neutralis (K-143) *d, sonoriensis* (J-607)
e, californicus (12,565) *f, nevadensis* (12,753)
g, mailliardorum (type, 14,645)
Specimens in collection of Donald R. Dickey

Specimens examined.—405, of which 224 are breeding birds from the following California localities: Los Angeles County: Palmdale; San Bernardino County: Victorville, Oro Grande; Inyo County: Shoshone, Little Lake, Deep Spring Lake, Independence, 2 miles north of Independence, Laws, 4½ miles northwest of Olancha, Lone Pine; Mono County: Oasis, Mammoth, Long Valley, north shore of Mono Lake, Farrington's Ranch on Mono Lake, Gem Lake, 5 miles north Benton Station, Walker Lake; Mariposa County: Yosemite Valley at 4000 feet; Alpine County: Fredericksburg; Eldorado County: Lake Tahoe; Placer County: Tahoe City; Sierra County: Sierraville, Loyalton; Plumas County: Beckwith, Mohawk, Meadow Valley; Modoc County: Clear Lake, Goose Lake Meadows near Davis Creek, Parker Creek in Warner Mountains, Willow Ranch, Jess Valley, 2½ miles southwest Alturas, Sugar Hill, Cedarville, Eagleville; Siskiyou County: Sisson, Edgewood, Weed, Bray, Yreka, Mayten, Big Springs; Shasta County: Cassel; Tehama County: Red Bluff, Elliots (5 miles west Payne Creek Post Office at 1000 feet), Battle Creek Meadows at 4800 feet.

Agelaius phoeniceus caurinus Ridgway
Northwestern Red-winged Blackbird

Agelaius phoeniceus caurinus Ridgway, Proc. Wash. Acad. Sci., vol. 3, April, 1901, pp. 153-154. (Cedar Hill, Vancouver Island, British Columbia.)

Diagnosis.—Bill longer and more slender than in *nevadensis* or *sonoriensis*, and slightly different from either race in shape. Adult males with middle wing coverts clear buff, unmarked with black except in examples from northwestern California and southwestern Oregon, where intergradation with *mailliardorum* has left its impress. Females richly marked in strongly contrasting colors, the plumage being suffused with buff and the feathers edged with rich browns and buffs at the expense of gray tones; the scattered feather edgings of the interscapular region usually light, contrasting strongly with the rest of the plumage.

Measurements of 10 adult breeding males from the coast of British Columbia and Vancouver Island:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
120.0-127.0	88.0-95.5	24.6-27.5	11.1-12.4	28.5-30.0	20.5-23.0
(123.0)	(91.4)	(26.0)	(11.7)	(29.3)	(21.5)

Measurements of 7 adult breeding females from the coast of British Columbia and Vancouver Island:

Wing	Tail	Culmen from base	Depth at base	Tarsus	Middle toe minus claw
97.5-104.0	73.5-78.0	20.5-22.2	9.0-10.7	25.1-26.9	18.6-20.0
(101.8)	(76.4)	(21.6)	(10.2)	(26.2)	(19.1)

Range in California.—A narrow strip along the Pacific coast from the Oregon line south at least to Humboldt Bay.

Remarks.—The breeding range of *caurinus* in California is comparatively limited, and birds from this state are by no means typical of the race. Breeding individuals occur which are inseparable from British Columbia examples, but, in the main, California birds are more or less intermediate toward *mailliardorum*. This intergradation is indicated by characters; but there is little doubt that geographical contact between these two races will be demonstrated when more work has been done in the humid northwest coast belt of California. Meantime, in Humboldt County, two of eight adult males at hand display extensive amounts of black on the middle wing coverts, while two out of an available series of ten females tend strongly toward *mailliardorum* in coloration. As a whole the Humboldt County series tends definitely toward *mailliardorum* both in bill shape and in general measurements.

Caurinus winters much farther south than is generally supposed. It is of common occurrence in the San Francisco Bay district (many specimens, October 19 to April 19) and in the San Joaquin Valley (Modesto, October 15 to March 19), south, casually at least, to Buena Vista Lake (December 30).

Specimens examined.—141, of which 22 represent breeding birds from the following Californian localities: Humboldt County: Trinidad, Eureka, Humboldt Bay (mouth Mad River); Del Norte County: Requa.

Pasadena, California, June 1, 1926.

NOTES ON THE BIRDS OF THE BABOQUIVARI MOUNTAINS, ARIZONA

WITH TWO ILLUSTRATIONS

By STEPHEN C. BRUNER

THE BABOQUIVARI MOUNTAINS are situated in Pima County in extreme southern Arizona and extend from near the Mexican boundary northward for a distance of about thirty miles. Little or nothing seems to have been published regarding the birds of these mountains, although the ranges to the north and east have been considered in a number of papers. The following notes are based largely on observations made in Otero Canyon during the period from March 18 to May 26, 1925, while I was residing at Fresnal Ranch, property of Mr. Bryan Peters.

Fig. 77. Looking across Otero Canyon towards the south. The giant cactus is not numerous here and the unusually large specimen in the foreground was a useful landmark. The mesquite is the predominating tree in the bottom-lands, live oaks on the slopes, and pines and junipers above along the crests of the higher ridges.

During this period it was possible to observe the majority of both the summer and winter birds in addition to those occurring during the spring migration. Unless otherwise indicated, all of the birds here recorded were noted within a mile or two of the ranch house, which is located at an elevation of approximately 3500 feet.

The Baboquívari Mountains attain only a moderate elevation, most of the ridges probably not exceeding 4000 to 5000 feet. They are uniformly rugged, quite arid, and very sparsely wooded except along the water-courses, which are entirely dry

excépt during a few days of each year. The upper, northern slopes of some of the higher ridges are rather heavily wooded over limited areas. The maximum elevation recorded is attained by Baboquívari Peak, 7,740 feet, a nearly barren, precipitous mass of rock which rises abruptly some seven miles to the southwest of Fresnal Ranch. This peak is hidden from view from the site of the ranch house by Fresnal Hill, so-called, which adjoins it on the north and which is said to be the second highest mountain in the range, evidently exceeding 6000 feet in elevation. Neither of these mountains was visited, which is to be regretted, as the latter, particularly, would no doubt have yielded ornithological data of interest, being apparently well-forested above.

No systematic collecting was done and hence a detailed examination of specimens was not possible except in the case of birds taken during banding operations and a few obtained otherwise. It has therefore been necessary to exclude from these notes a number of species the identification of which was somewhat uncertain, including the juncos and several species of flycatchers and swallows. The writer is indebted to Miss Cummings of the State Museum at the University of Arizona, Tucson, for giving him free access to the excellent collection of bird skins prepared by the late Mr. Herbert Brown.

Pelecanus californicus. California Brown Pelican. On the afternoon of March 23 a flock of nine of these birds was watched for about ten minutes as they circled above the canyon as if lost. They had evidently strayed over from the Gulf of California, some ninety miles distant.

Steganopus tricolor. Wilson Phalarope. One in full nuptial plumage and three in immature or winter plumage were observed, May 3, at the reservoir in Fresnal Canyon on the Papago Indian Reservation, some twelve miles to the west.

Lophortyx gambelii. Gambel Quail. Extremely abundant everywhere on the floor of the canyon, coming to drink at the corral in large coveys until about May 15, after which most of the birds were seen in pairs.

Cyrtonyx montezumae mearnsi. Mearns Quail. The "fool quail", as it is known locally, is said to be not uncommon in the canyon, on the grassy slopes among the live oaks. A male and two females were seen together along the trail about three miles above the ranch house on May 3.

Columba fasciata fasciata. Band-tailed Pigeon. On May 14, thirty or more were seen along the creek bottoms within two hundred yards of the ranch house. Eleven birds were noted together in one tree. Four more were seen on May 23.

Zenaidura macroura marginella. Western Mourning Dove. Although a few individuals were observed in the canyon during the latter part of March, they did not become common until after April 10.

Melopelia asiatica trudeaui. White-winged Dove. First noted on April 12, the "white-wings" became common everywhere in the bottom lands after April 20. The first nest, containing two eggs, was found on May 13. Two nests were discovered on May 19, each containing a newly laid egg. A fourth found on May 24 contained two fresh eggs.

Chaemepelia passerina pallescens. Mexican Ground Dove. Two seen in Altar Valley at Palo Alto, seven miles northeast of the ranch, are the only ones recorded.

Cathartes aura septentrionalis. Turkey Vulture. Common in the canyon during April and May; prior to that time they were rarely seen.

Accipiter velox. Sharp-shinned Hawk. The most commonly observed of the few hawks found in the canyon.

Buteo borealis calurus. Western Red-tailed Hawk. Noted almost daily, soaring high above the ranch; also seen rather commonly in Altar Valley.

Aquila chrysaëtos. Golden Eagle. Observed on March 27, April 15 and May 1. Eagles are considered to be fairly common in the Baboquívaris.

Falco sparverius phalaena. Desert Sparrow Hawk. Seen occasionally during March, April and May near the head of the canyon.

Bubo virginianus pallescens. Western Horned Owl. Frequently heard calling at night near the ranch house, and also flushed several times during the day. I was informed that during the past it has proved quite troublesome, due to its inroads on the poultry yard.

Micropallas whitneyi. Elf Owl. One shot in the poultry yard of the ranch in the evening of May 10. Its stomach contained five lepidopterous larvae and a centiped about two inches long. This most diminutive of our owls is apparently a rather uncommon resident in the canyon.

Geococcyx californianus. Road-runner. One seen near the corral on April 19 is the only record for the canyon; but Road-runners are not uncommon in Altar Valley some three or four miles to the east.

Dryobates scalaris cactophilus. Cactus Woodpecker. The only common resident woodpecker, at least in the bottom-lands. A female was flushed from her nest in the trunk of a live mesquite tree on May 9. When the nest was opened on May 25, the young appeared to be about half grown.

Dryobates arizonae. Arizona Woodpecker. A lone individual was observed on March 20, 21, and 23.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. A male was seen on March 19 and again on March 20 and 22.

Centurus uropygialis. Gila Woodpecker. During the latter part of March this was by far the most abundant woodpecker; but it disappeared shortly after the first of April.

Colaptes cafer collaris. Red-shafted Flicker. Flickers were rather common at the time of my arrival but began to disappear soon after, none being recorded after about April 1.

Phalaenoptilus nuttalli nuttalli. Poor-will. A bird heard calling in the evening of May 8 was taken to be this species.

Chordeiles acutipennis texensis. Texas Nighthawk. First seen about the ranch house on May 19; but nighthawks noted near the mouth of the canyon two miles to the east on April 28 were no doubt of the same species. They were frequently flushed from the road at night when I was crossing Altar Valley.

Aeronautes melanoleucus. White-throated Swift. When the crest of the high ridge to the south of the canyon was visited on April 15 these magnificent swifts were quite abundant. A few were again seen there on April 30, and over the divide to the west on May 3. I was informed that they had been seen here on March 15 also.

Archilochus alexandri. Black-chinned Hummingbird. This appears to be a common species in the canyon, at least as a migrant. It was first definitely recorded on April 23 when a dead bird was examined, but it no doubt arrived much earlier. After this date a number were seen, some when engaged in their curious aerial courtship dance.

Calypte costae. Costa Hummingbird. Observed commonly during the migration in April. The first definite identification was made on April 14, although what seemed to be the same species was noted as early as March 31.

Cynanthus latirostris. Broad-billed Hummingbird. This is a striking species, not easily mistaken, as its peacock green breast and bright red, black-tipped bill are very distinctive field characters. Its curiosity and habit of perching frequently within a short distance of passers-by invite attention. The Broad-bill was first seen on March 30 and thereafter it was noted almost daily until the end of April. It was last recorded on May 3 in Fresnal Canyon, in the Papago Indian Reservation. However, it seems quite probable that this hummingbird breeds in suitable localities in the Baboquivaris.

Tyrannus verticalis. Arkansas Kingbird. While not uncommon this species was less numerous than the Cassin Kingbird. It was noted first on March 23. One or two pairs established themselves for the summer near the ranch house. A nest with well grown young was found on May 24. At the reservoir in Fresnal Canyon both this and the following species were common on May 3.

Tyrannus vociferans. Cassin Kingbird. This is the more common resident kingbird in Otero Canyon. First recorded on March 18, it was noted regularly soon after.

Myiarchus cinerascens cinerascens. Ash-throated Flycatcher. Found commonly in Otero Canyon; also seen in Fresnal Canyon. It was first observed on March 30 and noted regularly after about April 7.

Sayornis sayus. Say Phoebe. Observed rather commonly during March, April and May; is evidently a permanent resident. Two nests about half completed were found on April 18 under the eaves of an outhouse. These were situated about three feet apart and were evidently built by the same bird, as in the case of the eastern

Phoebe of Mr. Burroughs which had "missed her aim", described by Dr. Chapman in "Camps and Cruises". One of these nests was finally completed and contained two eggs on May 11.

Sayornis nigricans. Black Phoebe. This species was rather uncommon, apparently occurring as a migrant in Otero Canyon, but may breed elsewhere in the Baboquívaris. It was first recorded on March 19 and last on May 3 near the head of the canyon, some five miles to the west. In Tucson it was noted as early as March 1.

Nuttallornis borealis. Olive-sided Flycatcher. Noted on April 25 and April 30 (two); probably not an uncommon migrant.

Empidonax difficilis difficilis. Western Flycatcher. First observed on March 26, it was seen more or less regularly thereafter until at least May 12. This is a very quiet bird, frequenting shady spots and therefore easily overlooked.

Fig. 78. Female Vermilion Flycatcher brooding. This bird was unusually confiding, returning to her nest and eggs while the photographer sat in plain view not more than three feet away.

Pyrocephalus rubinus mexicanus. Vermilion Flycatcher. Found rather sparingly in the upper portion of the canyon, but rather commonly lower down near the mouth and on the adjoining plains; also observed in Fresnal Canyon. Only two pairs took up their residence near the ranch house but a considerable number was seen during the migration. The first individuals were noted here on March 20, but in Tucson one was observed on March 1.

On May 12 a nest was found within one hundred feet of the ranch house. This was situated in a mesquite about eight feet from the ground and contained three eggs. These hatched five days later and by May 25 the young were well grown and within a day or two of leaving the nest. A second nest was found, May 20, in a cat's-claw tree about ten feet from the ground. It contained one freshly laid egg.

Otocoris alpestris, subsp.? Horned Lark. Flocks of horned larks were seen just to the east of the canyon in Altar Valley on March 29 and May 16, where they seem to be common. The summer birds, at least, are probably referable to the form *adusta*.

Aphelocoma woodhousei. Woodhouse Jay. Observed only twice, April 5 and 11, when lone individuals came to the corral to drink.

Aphelocoma sieberi arizonae. Arizona Jay. An abundant species, seen regularly in flocks in the upper portions of the canyon, but sometimes descending to the vicinity of the ranch house. The presence of these jays was always announced by a chorus of peculiarly finch-like notes.

Corvus corax sinuatus. Raven. The large American Ravens were occasionally seen flying high above the canyon, usually in pairs, their deep hoarse croaking betraying their identity. Among a large number of ravens seen around the reservoir in Fresnal Canyon on May 3, were a few individuals of this species. An aerial combat between two White-necked Ravens and one of their larger cousins, who took the defensive, was seen near Tubatama, Sonora, on May 17.

Corvus cryptoleucus. White-necked Raven. None apparently reside in Otero Canyon, but they were not infrequently seen flying over the ranch. They are common in Altar Valley and in Fresnal Canyon. On the outskirts of Tucson, especially along the Santa Cruz River bottoms, these ravens are exceedingly abundant, more than two hundred being counted on the morning of February 13, seventy of which were seen together in a group of three trees.

Molothrus ater obscurus. Dwarf Cowbird. Not noted in Otero Canyon until May 4; seen daily thereafter around the poultry yard in small bands up to the time of my departure. A flock of fifty or more was seen at the reservoir in Fresnal Canyon on May 3.

Tangavius aeneus involucratus. Red-eyed Cowbird. A lone individual appeared on May 17, and was joined in a day or two by a number of others. These, in company with the smaller *Molothrus*, were seen in the poultry yard regularly up to the time of my departure. The males were most interesting because of their antics, puffing out their neck feathers and strutting about in a most ludicrous fashion.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. A lone male in full plumage observed at the corral on April 26 is the only record.

Icterus parisorum. Scott Oriole. Three seen feeding among the ocotillo blossoms on the crest of the ridge to the south on April 15. Several observed there again on April 30. Later they were found in the bottom-lands. They probably breed in the canyon.

Icterus cucullatus nelsoni. Arizona Hooded Oriole. This species appeared in the canyon on April 11 and was afterwards a common and conspicuous resident.

Icterus bullocki. Bullock Oriole. A common migrant; first individual noted on March 20. None was recorded after March 31.

Carpodacus mexicanus frontalis. House Finch. Seen only occasionally during March, but became quite numerous soon after. During May it was probably the commonest breeding bird about the ranch.

Astragalinus psaltria hesperophilus. *Green-backed Goldfinch. First recorded on April 4, and small flocks seen occasionally until as late as May 15.*

Astragalinus lawrencei. Lawrence Goldfinch. A pair in full plumage was seen on March 27, and others, sometimes in small flocks, were noted at irregular intervals up to May 20.

Passer domesticus domesticus. English Sparrow. Six or more pairs were established around the ranch house.

Passerculus sandwichensis nevadensis. Nevada Savannah Sparrow. An individual accidentally killed during trapping operations for banding, May 2, constitutes the only record. A Savannah Sparrow noted on April 15 was probably of the same form.

Chondestes grammacus strigatus. Western Lark Sparrow. First seen at the ranch on April 7; they soon became very numerous about the corral. They were last noted on May 20.

Zonotrichia leucophrys leucophrys. White-crowned Sparrow. An abundant species, especially around the poultry yard where food was readily obtainable. The last individual was recorded on May 22.

Zonotrichia leucophrys gambeli. Gambel Sparrow. More numerous than the foregoing during March. It became less numerous towards the end of April, but a few were noted as late as May 12.

Spizella passerina arizonae. Western Chipping Sparrow. A few were seen during the latter part of March. During April they became abundant, but none was recorded after the first week in May.

Spizella breweri. Brewer Sparrow. Seen in considerable abundance on the plain to the east, and less commonly within the canyon. Here they were observed as late as May 15, when they were found in full song.

, **Amphispiza bilineata deserticola.** Desert Black-throated Sparrow. Found commonly, evidently as a resident, on the floor of the canyon, especially near the mouth to the east of the ranch.

Aimophila ruficeps scotti. Scott Sparrow. Two were noted, April 15, near the crest of the ridge to the south at an elevation of about 5000 feet, where they were apparently resident.

Melospiza lincolni lincolni. Lincoln Sparrow. Recorded only twice, April 6 and May 15, when lone individuals were seen at the corral.

Pipilo fuscus mesoleucus. Canyon Towhee. A common resident everywhere in the canyon.

Oreospiza chlorura. Green-tailed Towhee. Found above the ranch in the live oak belt on March 25; afterwards it was seen along the creek bottoms, becoming quite common during April. The last was noted on May 20.

Cardinalis cardinalis superbus. Arizona Cardinal. Exceedingly numerous, especially around the ranch house, where it was not too shy to display itself at all hours of the day. A nest containing three eggs was found on May 10; these hatched on May 19.

Zamelodia melanocephala. Black-headed Grosbeak. One or two noted nearly every day between April 7 and May 22.

Passerina amoena. Lazuli Bunting. A tolerably common transient. The first was recorded on April 10 and the last on May 20.

Piranga ludoviciana. Western Tanager. After April 27, when first recorded, this tanager became very common. Fifteen were captured for banding, water being the "bait" employed. All disappeared rather suddenly, the last being observed on May 21.

Piranga rubra cooperi. Cooper Tanager. First noted on April 24. Tolerably common thereafter throughout the migration period. As one was seen as late as May 23, it is possible that a few may breed in the canyon or nearby.

Progne subis subis. Eastern Purple Martin. The only record is that of a lone female observed at Palo Alto on May 26.

Tachycineta thalassina lepida. Northern Violet-green Swallow. On May 13 and 14 several were observed at short range, but what was no doubt the same species was seen with White-throated Swifts near the crest of the high ridge to the south on April 30. Probably a common migrant throughout the region.

Bombycilla cedrorum. Cedar Waxwing. Small flocks of waxwings appeared in the canyon on May 9 and were noted almost daily up to the date of my departure, May 26.

Phainopepla nitens. Phainopepla. One of the most common and conspicuous birds of the canyon. It appeared to be more numerous during April when it was not infrequently seen in small flocks. A nest containing one egg was found on May 5. This hatched on May 18. Only the male was seen in attendance.

Lanius ludovicianus excubitorides. White-rumped Shrike. No shrikes were found in the canyon, although not uncommon in Altar Valley a few miles to the east.

Vireosylva gilva swainsoni. Western Warbling Vireo. A rather common bird in the canyon, being noted from March 19 until at least as late as May 15.

Lanivireo solitarius cassini. Cassin Vireo. What was taken to be this form of *solitarius* was almost as numerous as the foregoing, at least during April. The first was recorded on April 1 and the last May 2, although it was almost certainly present after this date.

Vireo bellii pusillus. Least Vireo. First noted on March 22, and soon became one of the commonest birds in the canyon, its noisy call coming from almost every thicket. When the characteristic call was heard repeatedly from a small open mesquite on May 12 an investigation showed that it proceeded from an almost entirely concealed brooding bird on its nest.

Vermivora luciae. Lucy Warbler. Appeared on March 21, and became common by April 1. A bird carrying nesting material was noted on April 18. This species is the only common breeding warbler found in the canyon.

Vermivora ruficapilla gutturalis. Calaveras Warbler. Seen rather commonly from April 19 to 29, when the last individuals were recorded.

Vermivora celata lutescens. Lutescent Warbler. During March and April the Lutescent Warbler was one of the commonest small birds in the canyon. It was last noted on April 26. On April 24 an individual agreeing perfectly with the typical

form, *V. celata celata*, was watched for some time with the binoculars. At other times an occasional very dull bird with the concealed crown patch was seen, but the great majority were typical Lutescent.

Dendroica aestiva sonorana. Sonora Yellow Warbler. Tolerably common, the first appearing on April 24. It is not unlikely that it will be found to breed in the canyon, especially in the lower portion.

Dendroica auduboni auduboni. Audubon Warbler. Seen commonly during March and April. The last record is for May 12.

Dendroica nigrescens. Black-throated Gray Warbler. Found commonly from the end of March to the first of May. The first was noted on March 21 and the last on May 12.

Dendroica townsendi. Townsend Warbler. Although less numerous than the foregoing, this was not an uncommon species during the height of the migration. The first individual was noted on April 18, after which a few were seen regularly until May 15.

Dendroica occidentalis. Hermit Warbler. After April 15, when the first individuals were recorded, Hermit Warblers became tolerably common for a short while. None was observed after April 30.

Oporornis tolmiei. Macgillivray Warbler. Found rather commonly from March 30 until about the middle of May. The last individual was seen on May 25.

Geothlypis trichas occidentalis. Western Yellowthroat. Observed occasionally between April 21 and May 21.

Icteria virens longicauda. Long-tailed Chat. A lone individual noted on April 20 constitutes the only record.

Wilsonia pusilla pileolata. Pileolated Warbler. First recorded on April 1; found commonly throughout the month. The last record is May 2. A few individuals appeared considerably richer in color than the majority and it is probable that collecting would have shown these to be referable to the form *chryseola*.

Setophaga picta. Painted Redstart. This seems to be an uncommon transient visitor in the canyon, as it was recorded only twice, April 13 and April 23. It may breed, however, in the higher, more suitable portions of the Baboquívari range.

Mimus polyglottos leucopterus. Western Mockingbird. Although mockingbirds were occasionally noted in the canyon as early as March 28 and probably winter there, they did not become at all numerous until toward the end of April, when several pairs established themselves in the vicinity of the ranch house.

Toxostoma curvirostra palmeri. Palmer Thrasher. Fairly common resident. A recently-completed nest was found on April 18. Two eggs were laid some days later, which hatched on May 10 and 11. Only one of the young survived, which left the nest on May 25.

Toxostoma crissale. Crissal Thrasher. Probably not less numerous than the Palmer Thrasher, but being rather shy was less frequently observed. Nests containing well-grown young were found on April 20 and May 9. A third nest containing two eggs was discovered on May 17; these hatched on May 23. All three nests were similarly situated in the interior of small, dense, thorny bushes.

Heleodytes brunneicapillus couesi. Cactus Wren. A number were resident along the lower rocky sides of the canyon, but outside on the plains they were much more numerous.

Salpinctes obsoletus obsoletus. Rock Wren. One bird was noted on March 24 near the crest of the barren rocky ridge to the southeast of the ranch house. It is probably a fairly common resident in suitable situations.

Catherpes mexicanus conspersus. Canyon Wren. A pair observed about two miles above the ranch house on March 18; but none seen subsequently.

Thryomanes bewickii bairdi. Baird Wren. After the first of April this wren became rather common and was heard singing its peculiarly towhee-like song on every hand. It was not, however, recorded during May.

Baeolophus wollweberi. Bridled Titmouse. Noted almost daily in small numbers along the creek bottoms near the ranch house until April 1. It was found again, above, on the ridge to the south on April 30 at an elevation of about 5000 feet, where it probably breeds.

Psaltriparus plumbeus. Lead-colored Bush-tit. On March 20 a pair of Bush-tits was observed gathering spider-webs, evidently for nest building, from a live oak along an arroyo some four miles above the ranch.

Auriparus flaviceps flaviceps. Verdin. Found commonly everywhere on the floor of the canyon. On May 20 a fully-feathered young being fed by its parent was observed, and on the same day a pair of these birds was seen engaged in nest building.

Regulus calendula. Ruby-crowned Kinglet. Seen very commonly during March and April, the last being noted on May 3.

Polioptila caerulea obscura. Western Gnatcatcher. Met with rather commonly everywhere on the floor of the canyon during March, but disappeared early in April.

Polioptila plumbea. Plumbeous Gnatcatcher. Seen regularly, and not uncommonly, from March 18 up to the time of my departure.

Myadestes townsendi. Townsend Solitaire. Noted on March 18, 22 and 28, and on April 14. It would appear to be a winter visitor, and not uncommon.

Hylocichla guttata, subsp.? Hermit Thrush. Fairly common up to about the middle of april. The last straggler was seen on May 22. More than one subspecies was apparently represented among the birds seen.

Planesticus migratorius propinquus. Western Robin. Observed irregularly in small numbers up to April 24.

Santiago de Las Vegas, Cuba, July 27, 1925.

FROM FIELD AND STUDY

What is a Water Bird?—To answer this question is not quite such a simple matter as it may at first seem. A true definition must, of course, define, by elimination, a "land bird" as well. Almost all bird students know pretty well by a kind of instinct to which group a given species belongs. But some of those whose judgment in that regard may be unfailing would, I take it, have to do some thinking if suddenly called on for a hard and fast explanation of the terms. Among real bird-loving enthusiasts I have not infrequently noted a great lack of discrimination between land and water birds; nor are instances wanting of field-going professors of biology showing the same failure, if one may judge from such a classification as "herons, marsh wrens and other water birds". So it would seem worth while to really define the terms "land bird" and "water bird".

Such forms as swallows, swifts, hummingbirds and nighthawks are sometimes made to form a third group: "aerial" birds. This group does not seem to be so well-defined as the two larger ones under consideration, when one thinks of the kites, for example. Be that as it may, this group may fairly be regarded as a subdivision of land birds for the present purpose. Yet I believe one has only to substitute "aerial" or "land" (or "terrestrial"), as the case may be, to make the definition given beyond applicable to all species; and, in that case, we should certainly not find the "aerial" group unrepresented.

It is true that, but for a comparatively few exceptions, no definition would be necessary, the habitats and habits of the birds being usually so decided as to leave no room for doubt on the point. Yet, in checking over a complete list of American birds, we discover that the question by no means answers itself or hinges on the extent to which a given species is or is not aquatic in actual practice.

Take the case of the water ouzel for example. Now, I think it can be shown that, if the term "water bird" (and by fair inference "land bird") is to mean anything definite, we must eliminate the wonderfully aquatic ouzel from the group; and I believe this has, indeed, generally or always been done whenever a distinction has been made in this case. On the other hand we have, for example, the woodcock, a bird quite largely given to rather dry woodlands and merely moist bogs, yet properly classed as a water bird. Some definition can not well be indefinitely avoided and, as a working basis, I offer the following.

A water bird is any species of bird primarily and anatomically adapted to live continuously where aquatic conditions predominate. And, it may be added, a land bird is any species of bird not so adapted.

That definition, it will be observed, embraces not only birds which are actually aquatic in practice, but all species essentially related by structure to the water, regardless of their haunts and habits as a species. Now let us see if the definition will "hold

water", to use that expression in a somewhat literal sense. We easily find that the definition agrees with the actual practice of writers generally who attempt any division of the birds as land and water species, respectively. Even the land-loving woodcock and upland plover show, by their typical snipe and sandpiper structures, according to the case, an underlying affinity for the water as unmistakable as that of a grebe or a loon. Let us attack the definition from the land bird side.

Where shall we put the water ouzel, water-thrushes, kingfishers, fish hawk, marsh wrens and swamp sparrow, not to mention the marsh hawk and the red-winged blackbird? Is there in any of these a real primary anatomical adaptation to the water? Certainly there is none as obvious as the bill and legs of the woodcock or of the upland plover. It may be said that the straight bill of the kingfisher is adapted to his fishing; that the spicules on the toes of the osprey are specially related to his taking live fish from the water. Admitting both contentions, still the times of actual contact with the water are in both cases occasional and brief, not "continuous", as called for in our definition. Moreover, the structures in question do not directly relate to the water (and it is the environment which we are considering) but to the fish on which these birds feed. Our kingfishers are represented in some other parts of the world by forms which inhabit the woods and feed chiefly on insects. The osprey is obviously a real hawk and no one will contend that the hawks, as a group, show anything comparable with grebe-like or even snipe-like affinities. The marsh hawk, marsh wren, swamp sparrow and water-thrushes may be dismissed, as species which seek merely the vicinity of water, and whose actual contacts with it are only incidental. One of these is no more to be considered a water bird than is the tree swallow which loves to nest in a stump surrounded by water, and to bathe and skim the surface and dip so continually.

Rather peculiar is the case of the water ouzel. Indeed, it seems not quite certain that he must not be put in a class by himself, an intermediate class, just as he occupies a family of his own, Cinclidae. His general aquatic habits are too well known to need reviewing here. He puts even the ducks to shame by habitually walking on the bottom of a swift stream. I can testify from observation that the young ouzels, even before they are quite ready to leave the nest, can fall into a rushing torrent and be borne along as buoyantly, as nonchalantly, and as safely as you please. But, is he structurally adapted? Not, apparently, in the sense that even the woodcock is. However, it may be held that the plumage itself and the superficial appearance of the wings and tail are somewhat rail-like and may be related to the bird's aquatic habits; also, that the plumage is supplied with an extra amount of oil. Nevertheless, as between the two groups, I believe most of us would say the land birds should claim the ouzel.

The "teetering" habit is one so common among shore-birds and so comparatively rare among others that, on first glance, it might promise to be diagnostic of water birds. But what about the titlark? Certainly his teetering does not suggest a water bird status. I think we may omit the habit from serious consideration in the present discussion. However, there does seem to be some strange relation between a teetering propensity and the water; note the water ouzel and the water thrushes. Here is a possible subject for separate discussion.

To conclude, water birds are usually distinguishable from land birds simply by their haunts and habits. But there are, all together, many exceptions to the rule. Since a water bird may be less aquatic actually in haunts and habits than are certain land birds, haunts and habits alone can not be held a reliable criterion in determining a bird's status as of "land" or "water". When a form, like the water ouzel, which seems to be doubtful or truly intermediate, is closely examined, its adaptation to the water is (always?) found to be superficial or secondary or both, superficial in the case of the ouzel's plumage, secondary in the cases of the kingfisher's bill and the osprey's spicules. The least aquatic and most doubtful of true waterbirds are nevertheless closely related to forms whose habits as well as structures leave no room for doubt of their "water" status; so that the species stands for the family and the family for the species in this connection. Indeed, there is no need of other definition for the person who is quite satisfied to know merely that a water-bird "is any member of a water-bird family". However, the definition, as at first proposed, "primarily and anatomically adapted to live continuously where aquatic conditions predominate", would seem to be more direct and complete. It has this advantage, that it can be applied by the layman who might not have the knowledge on which application of the other definition is dependent.—EDMUND J. SAWYER, *Park Naturalist, Yellowstone Park, Wyoming, March 29, 1926.*

San Diego Red-wings Nesting in an Orange Grove.—On the evening of March 15, 1925, a flock of about fifty San Diego Red-wings (*Agelaius phoeniceus neutralis*) settled in our orange grove near Buena Park, California, apparently to spend the night. The following morning they were still there.

The flock continued to frequent the grove, and on March 24 two males were trapped and banded. On March 28, with the traps open twelve hours, one male and eight females were banded. On this day the cover crop was turned under. The next morning the majority of the birds seemed to have left, although, as we discovered, a large proportion of the ninety trees in this area held nests in some stage of construction. Two nests seemed to be complete. On March 30, only seven pairs were counted. These remained and nested. The nests were located from five and one-half to eight feet from the ground and were among the smaller branches of the trees. They were built of green barley straws from an adjoining field and lined with fine rootlets or hair or both. There was no mud foundation in any of the nests examined. Each was woven in the same manner as when built in cat-tails.

The first eggs were laid April 1, and the first young were hatched April 17. The young of two nests hatched, one each successive day; but in the rest of the nests the eggs hatched during a single day or night, indicating that some females begin sitting with the first egg. There were six sets of three eggs and one of four.

As the season advanced the colony grew. On May 5, thirty nests with eggs or young were counted. Some of these possibly were second sets of the original seven. During the season, until July 15 when they had all departed, eight males, eleven females and twelve nestlings were banded from this colony. Five repeated.—JAMES A. CALDER, *Buena Park, California, October 10, 1925.*

As to the Type of *Falco peregrinus pealei*.—Mr. Allan Brooks' "Notes on the Status of the Peale Falcon", in the March number of THE CONDOR, has interested me very much. It is a valuable contribution to our knowledge of that bird; but I think that Mr. Brooks' surmise that the subspecific name requires changing is quite unwarranted.

The type of *Falco peregrinus pealei*, although taken in Oregon (at least so labeled), is very much darker in color, especially on the under parts, than any eastern specimen I have seen; that is to say, it is *more uniformly* dark; for I recall an eastern specimen in which the general color of the upper parts was actually *black*. In my opinion, there can be no question that the type really represents the young plumage of the dark-colored northwest coast form discussed by Mr. Brooks. It was doubtless a migrant from farther northward.

As to *Astur atricapillus striatulus*, while it is true that the original description included two forms—the young of the dark northwest coast form and the very adult of *A. atricapillus atricapillus*—this fact does not, however, invalidate the name *striatulus* for the subspecies, because it has been generally conceded that not only the author of such a name but a "subsequent reviser" has the right properly to restrict its application. The principle is precisely the same as the restriction of a generic name by a later author.—ROBERT RIDGWAY, *Olney, Illinois, July 15, 1926.*

A Spring Trip to Santa Cruz Island.—Through the courtesy of L. E. Hitchcock, of the Biology Department of the Pasadena High School, I joined a party visiting Santa Cruz Island, going March 29 and returning April 1, 1926. The first night was spent at Potato Harbor and the next two at Fry's Harbor. We cruised along the entire east and north coasts, and covered considerable territory inland, from the last named landing, on foot. Aside from sea fowl, we were impressed by the abundance of Ravens and the scarcity of Bald Eagles, and also by the Island Finches, inhabiting deep coastal caves having no flooring but that of surging water.

Rhinoceros Auklet (*Cerorhinca monocerata*). Off-shore all the way over and back. Near shore about Anacapa and Santa Cruz islands. Occurred singly or with two or three in sight at a time. Observed on wing most commonly; often flew in toward us but alighted outside of our following flock of gulls. Every individual examined by eye or glass had white filaments on head, and many showed a small horn. No Cassin Auklets were seen or heard.

Pigeon Guillemot (*Cepphus columba*). Common in pairs about rocky places, and seen flying to the roofs of various caves as if interested in nesting sites. One group of eight birds in a cave separated into pairs when disturbed and swam in pairs out to sea.

Glaucous Gull (*Larus hyperboreus*). One huge individual, larger than any of the eight accompanying Glaucous-winged Gulls, followed our ship, drawing near and feeding time and again. It often alighted on the water and lagged behind, only to reappear in five or ten minutes. The mantle was of the lightest, most delicate pearl gray and the outer wings (primaries) were white. It was decidedly a white gull.

Glaucous-winged Gull (*Larus glaucescens*). A changing, small number of immatures followed the boat, going over and returning. One second-year individual remained in Wright's Harbor the full three days we were there.

California Gull (*Larus californicus*). Large rafts of mature birds (and only such) were seen resting at sea near Santa Cruz Island. Equaled the number of Western Gulls in the flocks that followed our boat.

Pacific Fulmar (*Fulmarus glacialis glupischa*). Fifteen to twenty were seen about San Pedro Harbor, only one in white and dusky plumage. At sea a few followed, dropping among the gulls as they fed on our lunch scraps. On our return trip only an occasional one or two approached us. Twice, floating carcasses were seen to be vigorously picked at for food. Our captain (Anderson of the "Moonlight") says they are known as fool-hens from their audacity and lack of fear.

Black-vented Shearwater (*Puffinus opisthomelas*). On the out trip very few seen. These swung in toward the flock of gulls feeding in our wake, but never stopped. On the return trip from one to six were in sight almost all the time, even near the mainland (Point Vincent). We saw them descend among gulls actively feeding on live fish, but not among the flocks that were feeding from our boat.

Sooty Shearwater (*Puffinus griseus*). Two individuals followed for several miles on the out trip, scooting into the water with the gulls that were following us for food. No others seen. "Barracuda birds," says Captain Anderson.

Cormorant. The white filaments of the Farallon and Brandt cormorants, as well as the white flanks of the Baird Cormorant, were seen on individual birds. These were the exceptions. One unidentified bird carried sea weed to the rocks.

Allen Hummingbird (*Selasphorus alleni*). Mr. M. W. De Laubenfels saw this species on Santa Cruz Island. [On April 6, 1925, on the north end of Catalina Island, we observed them at the height of the mating display.]

Island Jay (*Aphelocoma insularis*). One pair observed building a nest. An acorn was found wedged in the rocks at the very crest of a high ridge, far above the oaks of the canyon bottoms. It must have been placed there by this bird; the distance above the oaks impressed me.

Raven (*Corvus corax sinuatus*). Seen in pairs, but these often assembled in flocks for a time. In one pair observed, both birds were seen to "roll", one after the other.

Barn Swallow (*Hirundo erythrogaster*). Joseph H. Wales found a nest with five young in a cave.—ROLAND CASE ROSS, *Nature Study Department, Los Angeles City Schools, April 10, 1926.*

Notes on White-fronted and Tule Geese in Central California.—Ever since the publication of Swarth and Bryant's excellent paper drawing attention to the two forms of *Anser albifrons* wintering in central California (Univ. Calif. Publ. Zool., XVII, 1917, pp. 209-222), I have been particularly interested in these geese, and have taken advantage of such opportunities as offered for making observations upon them. Believing some of my notes may be of general interest, I hereby record them.

For the past fifteen years I have hunted ducks and geese on the Suisun Marshes, Solano County, where the White-fronted Goose (*Anser albifrons albifrons*) is a common winter visitant. Here dates of arrival over the period 1919 to 1925, inclusive, average October 11, with October 1, 1924 and 1925, and October 3, 1920, the earliest dates noted, and October 21, 1923, the latest date when first observed. The birds become common by early November.

The presence of the Tule Goose (*Anser albifrons gambeli*) on these marshes was first disclosed on November 23, 1919, when, in weighing the various geese resulting from a morning's shoot at a gun club three miles south of Suisun, Solano County, on the northern portion of Joyce Island, three specimens of this form were encountered. These birds, all adults, were strikingly larger than specimens of *A. a. albifrons* in the same bag, as their weights will indicate: 7 lbs. 8 oz., 6 lbs. 3 oz., and 7 lbs. 0 oz., against two immature White-fronted Geese weighing 4 lbs. 0 oz., and 5 lbs. 0 oz. The five specimens had 16, 18, 17, 16, and 16 rectrices respectively. The much darker shade

of brown of the neck, and especially of the head, of the Tule Geese was plainly apparent. Unfortunately no notice was taken of the color of the naked eye ring. However, the above characters easily separated the two forms, and there seemed no possibility of regarding the two immature geese as young of the larger form. It is unfortunate that no examples of adult *albifrons* were at hand for direct comparison, but I am familiar with the bird, and weights and measurements taken from adults at other times are almost identical with those of the immatures above mentioned. In size, especially of bill, length of neck and general proportions of the two forms, the above mentioned examples, and many since handled, show no tendency to intergrade, and they are much more easily separated than are some individuals of *Branta canadensis canadensis* and *B. c. hutchinsi*.

Since the time the above individuals were examined, I have become quite familiar with the Tule Goose in life, through numbers observed in the vicinity of Butte Creek in Butte and Sutter counties, and feel confident of the determination of the following occurrences of this form in the region named on the Suisun Marshes, all observations being made by me: November 7, 1920, two killed by another hunter and examined by me, also three adult White-fronted Geese in same bag; November 20, 1921, two noted at close range flying along a slough; December 11, 1921, two noted flying about willows and eucalyptus trees bordering an unfrequented slough; December 14, 1921, two birds flew within range but were not secured, on the slough where noted November 20. I believe the two individuals noted in the last three instances were the same birds, as the localities were quite close; and from the above records it may be inferred that this form is rather rare in this region, none having been noted since, though I have been present in the same spots on several occasions each year. The White-fronted Goose, as above stated, is common after early November and hundreds may be seen on favorable days. On November 20, 1921 (when two Tule Geese were noted), the commoner form was unusually abundant, upwards of two thousand being noted and eight secured, while it would have been an easy matter to have shot many more.

My notes on Tule Geese observed in the vicinity of Butte Creek, though mainly only corroborative of Judge F. W. Henshaw's observations (Swarth and Bryant, *loc. cit.*, pp. 218-219), may be of interest, if alone for this reason, so little being published regarding the life history of this form. I have found the Tule Goose, with the exception noted below, only along the heavily wooded banks of the larger sloughs of this region (Butte and Sanborn sloughs), where they apparently remain throughout the day, feeding in the small ponds formed by openings in the heavy tule growth of the surrounding overflowed marsh. Here they may be seen to best advantage in the morning between seven or eight and ten o'clock, when nearly all other geese including the smaller White-fronted are absent from the marshes, having repaired to the stubble fields for their morning meal. At this time, due to the absence of other geese, they are more noticeable, and may often be seen changing their positions by low flights over the marsh. After ten or eleven o'clock, due to the return of other geese to the tule swamps, where they loaf until time for the evening feeding, the Tule Geese are naturally much less in evidence. This, and the fact that only once have I noted them in barley fields, suggests that this form may obtain most of its food in the marshes rather than subsisting in large part on grain, like other geese of the region. This is an interesting point to prove, which I hope to be able to accomplish through stomach examination. The exception above referred to was a flock of seven birds seen feeding on a stubble field at 4 P. M. on November 12, 1922, in Colusa County just across the Sacramento River from the point of confluence of Butte Creek with this stream. This barley field in reality, however, more nearly resembled the chosen wooded habitat of the bird than the usual conception of a grain field, for, situated on a promontory formed by a sharp bend of the river, of some hundred odd acres extent, and liberally dotted with large Valley Oaks, with the river on the other side of the bordering levees, it indeed assumed such characters.

In flight, due to large size and more than proportionately longer neck (as pointed out by Judge Henshaw), and also, I believe, to slower, more measured wing beats, the Tule Goose may be distinguished from its smaller relative in the field. White-fronted Geese usualy fly about at a considerable elevation, at least 300 to 400 feet above the ground, and sometimes much higher. In alighting they ordinarily descend in a series of cautious circles without any member of the flock uttering a sound (except a low and peculiar nasal wheeze, not audible unless the birds are in close proximity, and evidently a cautionary note) until within about 25 feet of the ground, when all simultaneously

start a high pitched gabble, continued during the flapping descent and until the flock adjusts itself to its new surroundings. Tule Geese fly rather close to the ground, at least over the marshy country, seldom attaining an elevation of more than 200 feet and usually much less. Particularly when flying along sloughs, which they are wont to do, they seldom exceed 50 or 100 feet and often proceed only a few yards over the surface. This habit may be because their flights here are less protracted than those of the other form, and suggests that they may be more easily obtained, which is doubtless the case, though offset by the remote nature of their surroundings.

Flocks of *gambeli* are composed of fewer individuals than those of *albifrons*. Six to eight birds is probably the mode of the former, with twelve the highest number observed by me, and pairs rather numerous, while the latter form is often seen in much larger gatherings. Judge Henshaw has also noted this fact.

The voice of the Tule Goose, as remarked upon by Judge Henshw, is noticeably harsher and coarser than that of the White-fronted Goose, as might be expected in a larger bird, and to me it is more stentorian. It does not seem to be so noisy a bird as the smaller form and landings are accompanied with much less cackling than those above described, being executed, in some cases, in absolute silence. According to Judge Henshaw, the Tule Goose is less shy than the White-fronted, often decoying without the usual wary circling of the latter, and this habit has been confirmed by my observations.

These habits were clearly demonstrated in one or more ways by all the birds noted by me on the Suisun Marshes. The fact that these peculiarities are unknown to most observers, or at least not properly appreciated unless noted in the field, is, I believe, responsible for the lack of records we have of the Tule Goose from sections other than the vicinity of Butte Creek, rather than the non-occurrence of the bird in suitable localities elsewhere in the state.—JAMES MOFFITT, *1825 Broadway, San Francisco, California, June 10, 1926.*

The Cardinal Again.—One year ago I reported the Cardinal (*Cardinalis cardinalis*). It had been under observation for about eight months. Since that time I have made frequent trips, almost weekly, and have found it in three new places as well as in the old. In fact, I have not made a trip to any of the locations in the past few months that I did not see or hear one or more. Mr. L. E. Wyman reports it has been seen at San Diego and Inglewood. I am surprised that the addition of a new species to the avifauna of California, especially one so beautiful as the Cardinal, has not aroused more interest and attention. It is here to be seen and heard by anyone who desires.

In the same locality may be seen the Russet-backed Thrush, Golden Pileolated Warbler, Chat, and many of the more common kinds.—H. N. HENDERSON, *Whittier, California, June 29, 1926.*

Fruit-eating Hummingbirds.—As I have access to but a small part of the literature pertaining to the hummingbirds, it is quite possible that the item now recorded may simply corroborate earlier observations of such a habit. But in my experience it is original.

Heliodoxa jacula henryi is one of the largest, as well as one of the most splendid, of the fifty-odd hummingbirds now known from Costa Rica. Normally, it is confined to the humid sub-tropical zone of the Caribbean watershed. On May 2, 1926, on the slope of the Volcano Turrialba, at an altitude of 3500 feet, and reached from the railroad station of Peralta, I met with several individuals. They were feeding upon the fruit of a small tree (possibly *Eugenia*). This fruit was of the size and form of an elderberry, and quite ripe. The birds would alight upon a branch within reach of the fruit, sometimes on the fruiting stem even; then slowly turning their heads toward the fruit, quickly pluck it from the stems.—AUSTIN SMITH, *San José, Costa Rica, June 2, 1926.*

Correction Concerning Aviaries.—In my paper on "Lessons in Aviculture from English Aviaries" (Condor, XXVIII, Jan., 1926, pp. 3-30) it was an error to claim (p. 24) that Lord Tavistock was the first to breed the Princess of Wales Parakeet in England, as the late Mr. Hubert Astley holds the record, dating many years before. In the same article, the statement (p. 26) "Lime alone is useless except as a soil purifier" should read "Lime alone is useless as a soil purifier."—CASEY A. WOOD, *House Boat "Bendemeer", Srinagar, Kashmir, India, May 13, 1926.*

'Robin Carrying Water to Young.—On July 15, 1926, I noticed a Western Robin (*Planesticus migratorius propinquus*) standing on a water pan which was placed beneath a dripping faucet. The bird's mouth was held wide open, for the day was over 100 degrees in the shade. It took a few swallows of water, then suddenly dipped its beak in the water and flew up into an acacia tree nearby. There its nest was situated, containing young robins. It didn't pause in its flight but flew straight to the nest, and I believe that it was carrying water to its young. It made repeated trips from the nest to the water pan, always flying rapidly and straight to the nest. However, on returning to the water it flew more slowly.—JAMES L. ORTEGA, *Yountville, California, July 17, 1926.*

Exhaustion of Migrating Sea Birds.—The hazardous life to which pelagic birds are subjected in their great flights over the high seas has been brought forcibly to my attention in recent observations of Pacific Fulmars (*Fulmarus glacialis glupischa*) and Pacific Loons (*Gavia pacifica*). On a number of occasions last fall and winter, while collecting sea birds off Point Loma for the Natural History Museum, I saw fulmars scattered over the water sound asleep. They were so very sluggish and dull that I could run up alongside of them in the motor boat, and it was only after being disturbed several times that they would fly to any distance. My first thought was that the birds were gorged with food, but specimens of both light and dark color phases taken November 29, 1925, December 6, 1925, and January 1, 1926, proved to be exceedingly thin and emaciated. When skinned at the Museum, the usual layer of fat was found to be absent and the stomachs were absolutely empty. On March 22, 1926, two fulmars were observed ravenously attacking the body of a dead Rhinoceros Auklet (*Cerorhinca monocerata*) floating on the water. On the same day, to prove the closeness of approach that the birds would permit, two sleeping fulmars were captured alive in a dip net. They were very thin and eagerly ate some fragments of fish pressed from the crops of cormorants I had collected. These two birds were given to the San Diego Zoo, but they did not live.

Later in the season, a similar exhaustion was observed in the case of Pacific Loons on their northward migration. Specimens taken between April 22 and May 11 were altogether free of the fatness one ordinarily associates with sea birds. During this period Pacific Loons were more abundant in San Diego Harbor than I have ever seen them; they also entered Mission Bay in numbers. About the dock of the San Diego Yacht Club at Roseville, on April 25, some of the swimming loons were apparently without strength to hold up their heads. Their necks would droop forward until their bills were submerged, only to be feebly raised from time to time. Individuals that had died were floating on the water. For a distance of about three miles on the Coronado Strand, along which I walked on April 22, dead Pacific Loons were lying on the beach at intervals of only a few yards. Other loons were still alive at the edge of the surf, but were so feeble that they could be picked up in the hands.—JOSEPH W. SEFTON, JR., *San Diego Society of Natural History, San Diego, California, June 21, 1926.*

Some Notes on the Cliff Swallow.—On May 22 and 24, 1926, Mr. James A. Calder and myself banded a number of nestling Cliff Swallows (*Petrochelidon lunifrons lunifrons*) in a colony that had their nests about the top of an empty wooden silo on the Cady ranch west of Buena Park. Some of these birds were ready to leave the nest, and, when replaced after banding, would scramble out again and launch themselves into the air for their first flight. Their powers of flight are really remarkable; a little uncertain at first, they seemed to gain strength and confidence as they went, and, followed and encouraged by a small group of adults, they stayed in the air a long time before seeking rest on a barn roof or some other broad surface. On the 24th, when I returned home, I observed one of these young birds, still in the air, with flight that was scarcely to be distinguished from that of the adults that flew about it, although it was at least an hour since it had left the nest, and it was about half a mile away from the colony. The next morning early, one of these birds was on the ground in an open shed at my place, where it had evidently spent the night. When I approached, it flew up and away, apparently well able to take care of itself.

On May 27, I was banding nestlings in another colony, on the McNeil place about half a mile away from the Cady colony. I had banded four well grown young from one nest, and was about to put them back, when I saw that there was another one in

the nest. On taking the fifth bird out, I found that it was no. A52737 that we had banded at the Cady colony on the 22nd. It seemed to be none the worse for its change of residence and when released flew out of the barn and away. A few minutes later a bird with a band flew in and lit on a timber nearby. Thinking it might be the same bird, I caught it and found that it was no. A52734, also banded at the Cady colony on the 22nd.

Are such interchanges of birds between colonies a common thing with Cliff Swallows?—JOHN MCB. ROBERTSON, *Buena Park, California, June 9, 1926.*

Has the Cowbird Come to Stay?—The advent of the Cowbird (*Molothrus ater obscurus*) into the Bay Region of western middle California was recently announced by La Jeunesse (Condor, XXV, 1923, p. 31). Having been, years ago in Indiana, much interested in the Cowbird's relations to the nesting of other birds, I decided to seek out the locality of La Jeunesse's finds, with the hope of paralleling his experiences. Acting upon this decision, I visited Irvington on June 16, 1923, and, presumably, located the "bird haunt" of his Cowbirds. My enthusiasm ran high as I approached this avian rendezvous and I saw Cowbirds galore in the numerous young Brewer and Bi-colored Blackbirds that were noisily aggregated into flocks at this date. Plunging into the brush, I soon had listed thirty-three nests, twelve of which were those of the Willow Goldfinch; but not one "vagabond" egg was found by me, nor a nestling that I felt free to call a Cowbird. Also my flocks of young and adult blackbirds, observed more carefully, failed to produce a real *Molothrus.*

This locality was not visited by me in 1924; but in 1925 visits were made on April 11 and June 26—and what a change cattle and axes can quickly make in a once delightful bird haunt! Results: few birds, few nests, no Cowbirds.

June 13, 1925, was spent along Coyote Creek, near San Jose. Twenty-one nests (not including Cliff Swallows') were noted, the third found being a nest of the Pileolated Warbler with two young, one fully twice as large as the other; suggesting, at once, "those early days" in Indiana. On my way home from Irvington, June 26, I dropped in to take another look at the occupants of this San Jose nest; but same was empty and deserted. However, just across the creek was found another warbler nest containing an egg which the builder had not placed there. I promptly retreated, returning on June 29, and then collected my first Cowbird egg in California, no warbler eggs having been added.

The present season, 1926, has now yielded its returns. These, briefly summed up, are as follows: Nest 290, Yellow-throat (*Geothlypis trichas,* subsp.?), two eggs of owner plus one of Cowbird, female flushed, one foot up in bur-reed (*Sparganium,* sp.?), June 25, Guadalupe Creek; nest 367, Pileolated Warbler, two eggs of owner plus one of Cowbird, deserted, as indicated by eggs concealed by fallen leaves, three feet up in dead elderberry bush in box elder thicket, June 30, Coyote Creek; nest 369, Russet-backed Thrush, female sitting on two of her own eggs and one of Cowbird, six feet up in box elder, June 30, Coyote Creek; nest 375, Traill Flycatcher, one egg each of builder and parasite, deserted, fourteen feet up in box elder, July 3, Guadalupe Creek.

The two eggs from the Coyote are very much alike and one might surmise that one female Cowbird laid both. Likewise the two eggs from the Guadalupe are nearly "twins", but very different from the two from the Coyote. Surely a different female was responsible for their origin. Although on the watch for adult male and female Cowbirds, I have yet to see the first one.—CHARLES PIPER SMITH, *San Jose, California, July 5, 1926.*

The Ferruginous Rough-leg Nesting in Oregon.—Although the beautiful Ferruginous Rough-leg (*Archibuteo ferrugineus*) has long been known as a fairly frequent fall and spring migrant, it was not until the spring of 1926 that the species was definitely found to nest within this state. The first nest was located late in March by R. T. Jackson while engaged in running a coyote trap-line in central Morrow County about fifteen miles south of the town of Boardman. This is all an open, sandy, sage-brush country, mostly level and covered with a sparse growth of sage-brush, kunzia brush, and other desert plants, with here and there isolated junipers of small to medium size.

This nest was visited by the writer on April 9, 1926, when it contained four beautifully marked eggs. The bulky nest was built on the top of a lone juniper, about seven feet above the ground, and could plainly be seen from a considerable distance. Both

parent birds sailed about as we drove an auto up to the tree, and they remained nearby while photographs were being taken of the nest and eggs. The nest was a bulky affair, composed of dry sage-brush and juniper limbs and lined with fiber from sage-brush.

Four additional nests were located as follows: April 10, 1926, eight feet up in juniper; four eggs. April 11, 1926, six feet up in juniper; three eggs. April 15, 1926, seven feet up in juniper; five eggs. April 16, 1926, nine feet up in juniper; parents at nest; no eggs.

The nests were of similar construction and all were in isolated junipers. Each one containing eggs was ornamented with two or three large pieces of dried cow manure. The five nests were all within a thirty-mile square. This same area furnished nesting places for at least two pairs of Western Red-tail and one nest of Swainson Hawk.—STANLEY G. JEWETT, *Portland, Oregon, May 3, 1926.*

Additional Records from Arctic Alaska.—We have recently received a small collection of bird-skins from Alaska, among which were the following: no. 11,346, *Aethia cristatella;* adult female; July 2, 1925; Wainwright, Alaska. No. 11,636, *Aethia pusilla;* adult, sex not determined; October 1, 1925; Barrow, Alaska. No. 11,350, *Euphagus carolinus;* adult female; July 2, 1925; Wainwright, Alaska.

The birds from Wainwright were taken by Mr. A. J. Allen and the one from Barrow by Mr. Charles Brower. This is the second specimen of Least Auklet from Barrow, the first having been collected by E. A. McIlhenny, August 30, 1897, and recorded by Dr. Witmer Stone (Proc. Acad. Nat. Sci. Phila., 1900, p. 7). The Wainwright birds appear to be the first from that station.—ALFRED M. BAILEY, *Colorado Museum of Natural History, Denver, Colorado, June 15, 1926.*

The Lower California Reddish Egret.—I have recently had occasion to compare a small series of Reddish Egrets from the Gulf of California with Gulf Coast of Texas specimens. There are certain obvious differences between these two series which it seems advisable to recognize by name, and the race is therefore formally characterized below. It is named for Mr. Donald R. Dickey in partial appreciation of his services to California ornithology.

Dichromanassa rufescens dickeyi, subsp. nov.

Type.—Breeding male, adult; no. 15,112, coll. Donald R. Dickey; San Luis Island, Gulf of California; April 13, 1925; collected by A. J. van Rosem, no. 8229.

Subspecific characters.—Similar to *Dichromanassa rufescens rufescens* (Gmelin), but head and neck much darker, between cameo brown and chocolate of Ridgway (1912); body, wings and tail throughout, uniform in color, between deep neutral gray and slate color; dorsal plumes concolor with rest of body plumage, only very slightly paler at tips.

Range.—I have been able to examine birds from San Luis Island only; but this is undoubtedly the form which occurs south to Cape San Lucas and on the Pacific side of the peninsula at Scammon Lagoon.

Remarks.—In *rufescens*, while there is some variation in the color of the upper parts of the body, this is, even in fresh plumage, less plumbeous than in *dickeyi*. The most conspicuous differences are in the dark color of the head, neck, and underparts. As to size, the only differences observable are the slightly longer wing and tail of the males in the Gulf of California birds.

Four adult males of *rufescens* from Cameron County, Texas: Wing 330.0; tail 109.5.

Three adult males of *dickeyi* from Gulf of California: Wing 341.0; tail 119.0.

Specimens examined.—rufescens, Cameron County, Texas, 7, March and June; *dickeyi*, Gulf of California, San Luis Island, 5, March and April.—A. J. VAN ROSSEM, *Pasadena, California, August 13, 1926.*

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

APRIL.—The monthly meeting of the Southern Division of the Cooper Ornithological Club was held April 27, 1926, at the Los Angeles Museum at Exposition Park. The following members were present: Misses Burnell and Potter; Mesdames Ellis, Law, and Warmer; and Messrs. Allen, Bishop, Edwards, Law, Michener, A. H. Miller, L. H. Miller, Robertson, Runner, Warmer, and Wyman. The meeting was called to order by President Bishop at 8:15 P. M. Minutes of the March meeting were read and approved.

The following applications for membership were presented: Mrs. Julius H. Aniotzbehere, 128 John St., Salinas, Calif., by O. P. Silliman; John P. Barker, 460 Cypress, Burbank, Calif., by Harold Michener; Clarence Cottam, 459 N. 6th St., East Provo, Utah, by Vasco M. Tanner; Gerald Cooper, 2312 Fairfax St., Denver, Colo., Dr. Ira E. Cutler, Zool. Dept. Univ. of Denver, Denver, Colo., and Robert Landberg, 4672 Sherman St., Denver, Colo., by Alfred M. Bailey; J. L. Ridgway, 501 Fairmont, Glendale, Calif., and George R. Waehr, R. F. D. 3, Murray, Utah, by W. Lee Chambers; and Juliet G. Voorhies, 4939 Pasadena Ave., Los Angeles, Calif., by Ella H. Ellis.

A motion was made by Dr. Miller to reaffirm the resolutions regarding the National Game Refuge Act, forwarded to this Division from the Northern Division; however, no positive action was taken by the club on the matter.

Mr. Law presented an account of the habits of a family of young Horned Owls kept in captivity for the past season. The methods of feeding, fear reactions, and habits of play were all described as observed in this family of owls. Mr. Law has been primarily interested in the feather growth and juvenile plumage. Much to the pleasure of those present, one of the young owls was produced to give a practical demonstration of behavior. The remainder of the session was then given over to the joint entertainment of the young owl and the spectators.

Adjourned.—ALDEN H. MILLER, *Secretary.*

MAY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held May 25, 1926, at the Los Angeles Museum, at 8 P. M. Thirty-five members and visitors were present. The meeting was called to order by President Bishop and the minutes of the April meeting read and approved. Minutes of the Northern Division for March and April were read.

The following were the applications for membership: George Dudley Atwell, Eureka, Calif., by Dr. Gilbert A. Howatt; Griffing Bancroft, Jr., 2525 First St., San Diego, Calif., by Donald R. Dickey and L. H. Miller; J. C. Braly, 501 Burnside St., Portland, Ore., by Stanley G. Jewett; James J. Carroll, P. O. Box 356, Houston, Texas, by W. Lee Chambers; John Quincy Langen, 858 Tremaine Ave., Los Angeles, Calif., by J. Eugene Law.

Mr. Wyman raised the question of the Game Refuge Resolutions and moved that the Southern Division reaffirm them, as follows:

RESOLVED, that the Southern Division of the Cooper Ornithological Club reaffirms its conviction that the proposed Migratory Bird Refuge and Marshlands Conservation Act, H. R. 7479, Senate 2607, embodies a measure which is of vital importance in the preservation and development of our birds, for whose sustenance, propagation, and very existence, submerged refuges are indispensable; and

Further RESOLVED, that the administration of such refuges presents a biological problem for trained specialists cognizant of the different and fluctuating conditions obtaining throughout the entire ranges of our migratory birds and that, in the Bureau of Biological Survey, we already have a trained and competent agency for the unified control which alone can achieve the objects of the Act; and

Further RESOLVED, that the Southern Division of the Cooper Ornithological Club respectfully urge our Senators and Representatives to interest themselves in bringing said measure to a vote at the earliest possible time, during the present session; and

Further RESOLVED, that the Secretary be requested to transmit a copy of these resolutions to each Member of Congress from California.

The motion was carried.

A report of a recent trip to Baja California by Laurence Peyton, and an exhibition of some of the skins obtained, was followed by a discussion of some of the Lower Californian forms. Mr. Frederic Webster, the speaker of the evening, presented the subject of the personality of birds and illustrated his talk with a fine series of lantern slides of his captive pets.

Adjourned.—ALDEN H. MILLER, *Secretary.*

JUNE.—The Cooper Ornithological Club, Southern Division, held its regular monthly meeting Tuesday evening, June 29, 1926, at the Los Angeles Museum, Exposition Park, with an attendance of thirty. In the absence of the president, Dr. Bishop, Vice-president Appleton called the meeting to order.

Business was postponed until after the talk given by Mr. A. van Rossem, the speaker of the evening. Mr. van Rossem

has spent the greater portion of the past year collecting in Central America and gave a general outline of conditions as found in Salvador. A series of slides accompanied his remarks as he described different parts of the country and the birds found there. He related some amusing incidents of hunting at night with carbide lights. Questions following his talk brought out some interesting observations on migration.

Minutes of the May meeting were then read and approved. Minutes of the Northern Division were read by title only. The following applications were presented: James Deane Cochrane, Barkerville, B. C., Canada, by Harold Michener; C. J. Metzger, 6312 So. Ashland Ave., Chicago, Ill., by W. Lee Chambers; Joseph Wendle, Bowron Lake, Barkerville, B. C., Canada, by Harold Michener; J. Carlisle Youngberg, 1927 Washington St., San Francisco, by Griffing Bancroft.

Mr. Roland Ross deplored the increasing numbers of Cowbirds and felt that something should be done to check their spread. Several members reported the prevalence of Cowbirds in different sections of the state and enumerated birds that had been called upon to act as foster parents.

Adourned.—ELLA H. ELLIS, *Secretary pro tem.*

NORTHERN DIVISION

MAY.—The May meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, May 27, 1926, at 8:00 P. M., in the Museum of Vertebrate Zoology, Berkeley. President Allen occupied the chair, with the following members present: Misses Bastin, Cockefair, Fisher, Pickard, Thomson; Mesdames Allen, Bogle, Cantwell, Grinnell, Kibbe, Mead, Mexia, and Mikesell; Messrs. Booth, Bunker, Cantwell, Cain, Ellis, Grinnell, Hall, Jesser, Kibbe, Lastreto, Myers, Perine, Pursell, and Swarth. Visitors were: Misses Hargrave, Monell and Spencer; Mesdames Bunker, Evermann, Jesser, Stephenson, Swarth, and Mr. Mikesell.

Minutes of the Northern Division for March and April were read; minutes of the Southern Division were read by title.

A letter was read from Mr. D. E. Danby of Santa Cruz calling the attention of the Northern Division of the Club to the fact that the members of the Rod and Gun Club of that city had just concluded their annual "blue jay shoot". Newspaper clippings sent by Mr. Danby reported that hawks, butcher-birds and kingfishers, as well as skunks and other mammals, were among the "trophies" of the hunters. Mr. Danby asked that the Club take action to prevent the recurrence of such an event. Mr. Grinnell expressed the opinion that action in such a case might properly be taken by the State Fish and Game Commission and made a motion to the effect that its pointed attention be called to this case. The motion was seconded by Mrs. Mikesell and unanimously carried.

A communication from the Ecological Society of America was read requesting that it be permitted to refer to the Cooper Ornithological Club as an "affiliated organization". Objections to such a procedure were voiced by some members of the Division, and upon the motion of Mr. Lastreto the letter was laid upon the table.

Mr. Lastreto, chairman of the committee appointed by President Allen to investigate the possibility of bringing to San Francisco the splendid bird art exhibit assembled in Los Angeles for the first annual meeting of the Cooper Club, reported that the committee had been unable to accomplish its object owing to the fact that the exhibit is now scattered. He reported, however, such cordial coöperation on the part of Mr. Gamble of the Seven Arts Club of San Francisco, that, at the suggestion of Mr. Swarth, President Allen refrained from discharging the committee, thinking that it might be of service in similar connection at a future date.

The secretary reported that several members of Congress had expressed a gratifyingly cordial attitude toward the Game Refuge bill when acknowledging receipt of the resolutions passed by the Northern Division at the April meeting. Mr. Kibbe reported the bill to have been placed upon the Senate Calendar.

Mr. Grinnell briefly and favorably reviewed two new books of interest to bird students: "Problems of Bird Migration", by Thomson, and the "Origin of Birds", by Heilmann.

Several members of the Club told of field trips recently taken. Mrs. Mead reported the wonderfully interesting trip taken by several members to the Los Baños marshes with their wealth of nesting birds. Mrs. Kibbe told of the trip from Ross to San Quentin in Marin County, and Mrs. Allen of a spring visit in the Sierra foothills. Mr. Swarth gave an account of a field trip into the inner coast ranges, 200 miles to the northward, in the Yolla Bolly region. Mr. Bunker and Mr. Cain also told of recent observations of interest. Adjourned.—HILDA W. GRINNELL, *Secretary.*

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